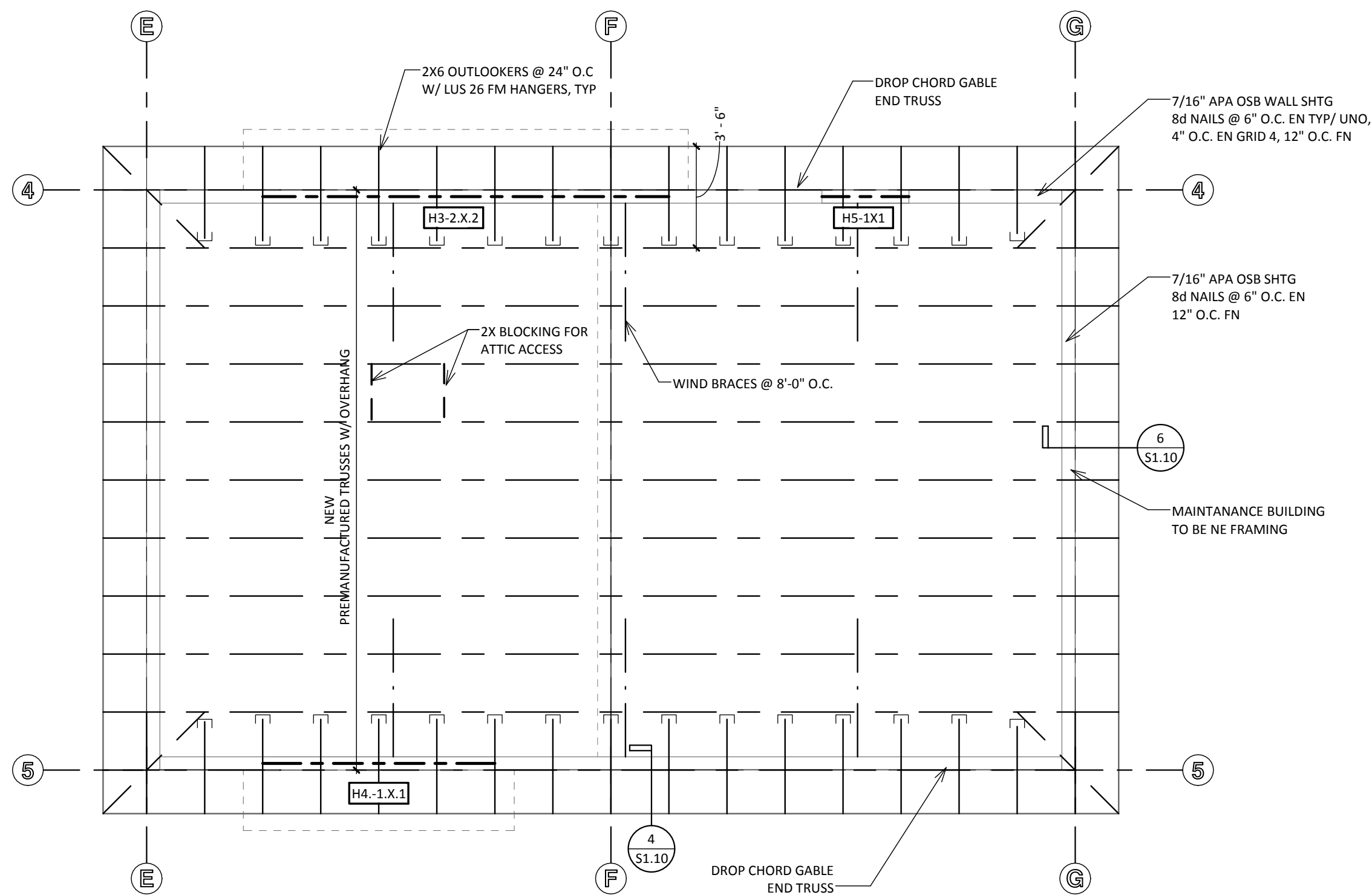
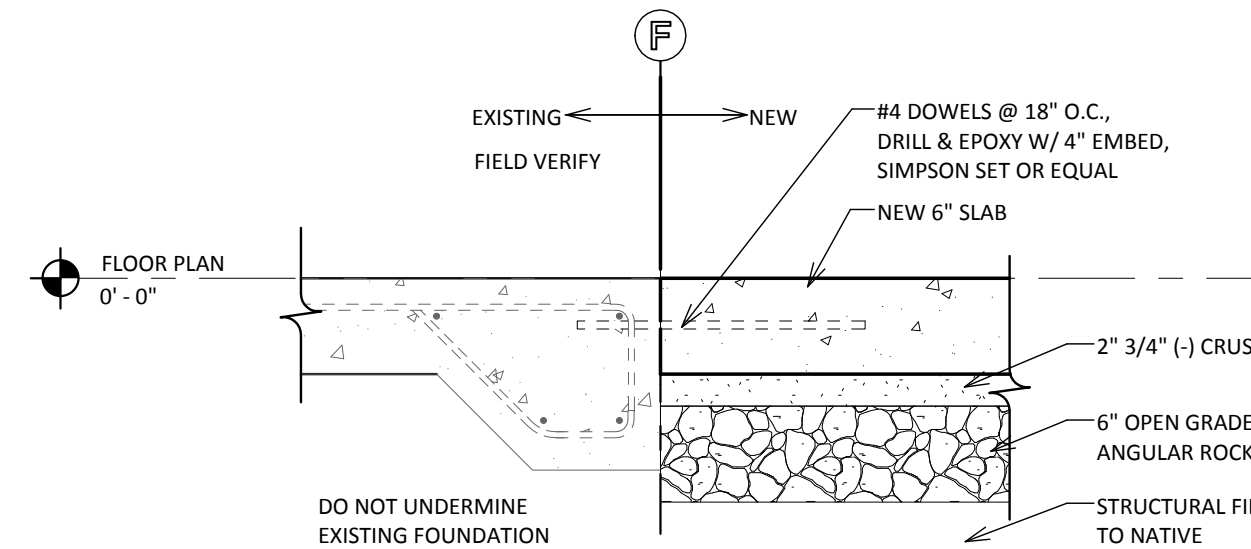


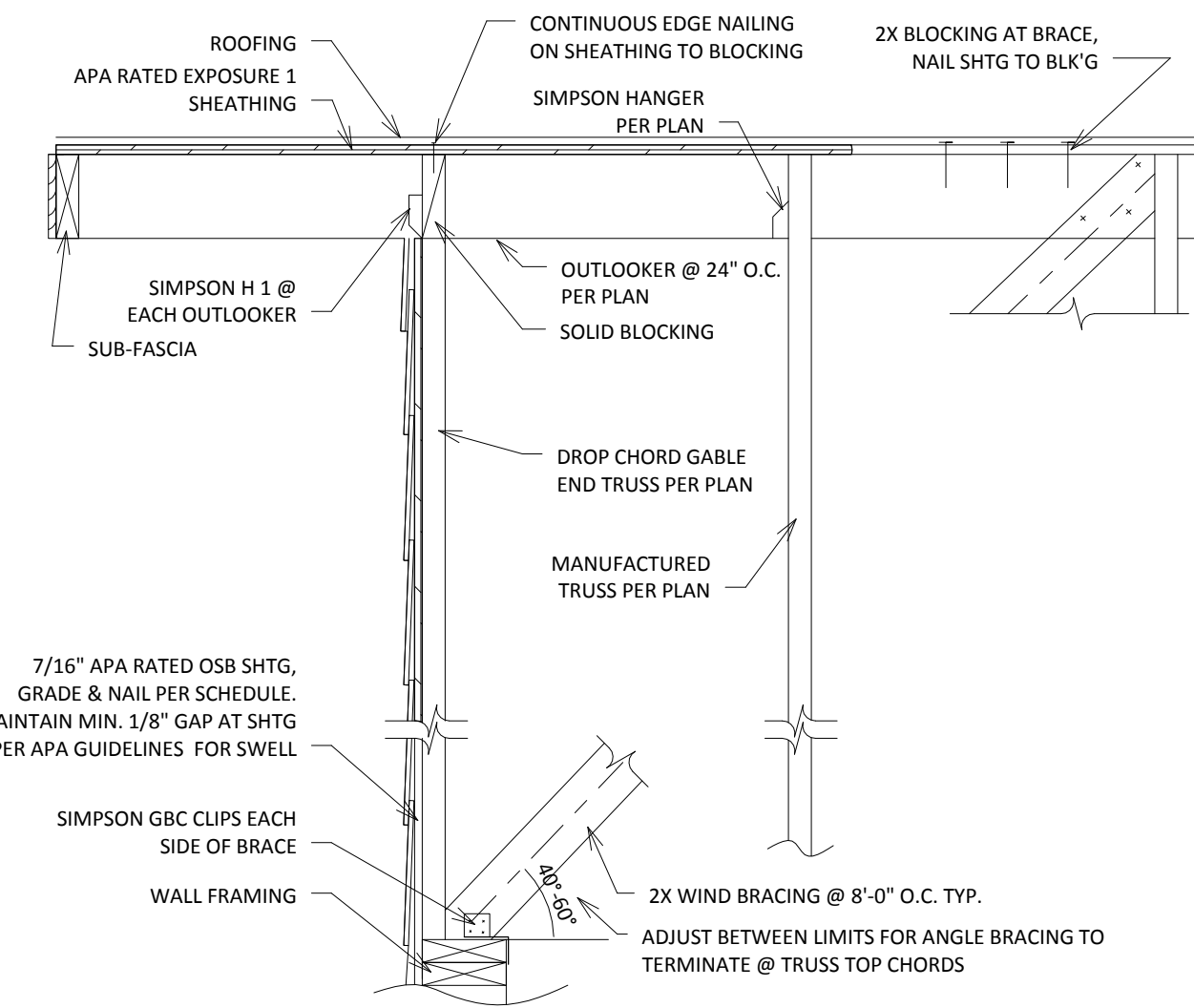
1 FOUNDATION - MAINT. BLDG
1/4" = 1'-0"



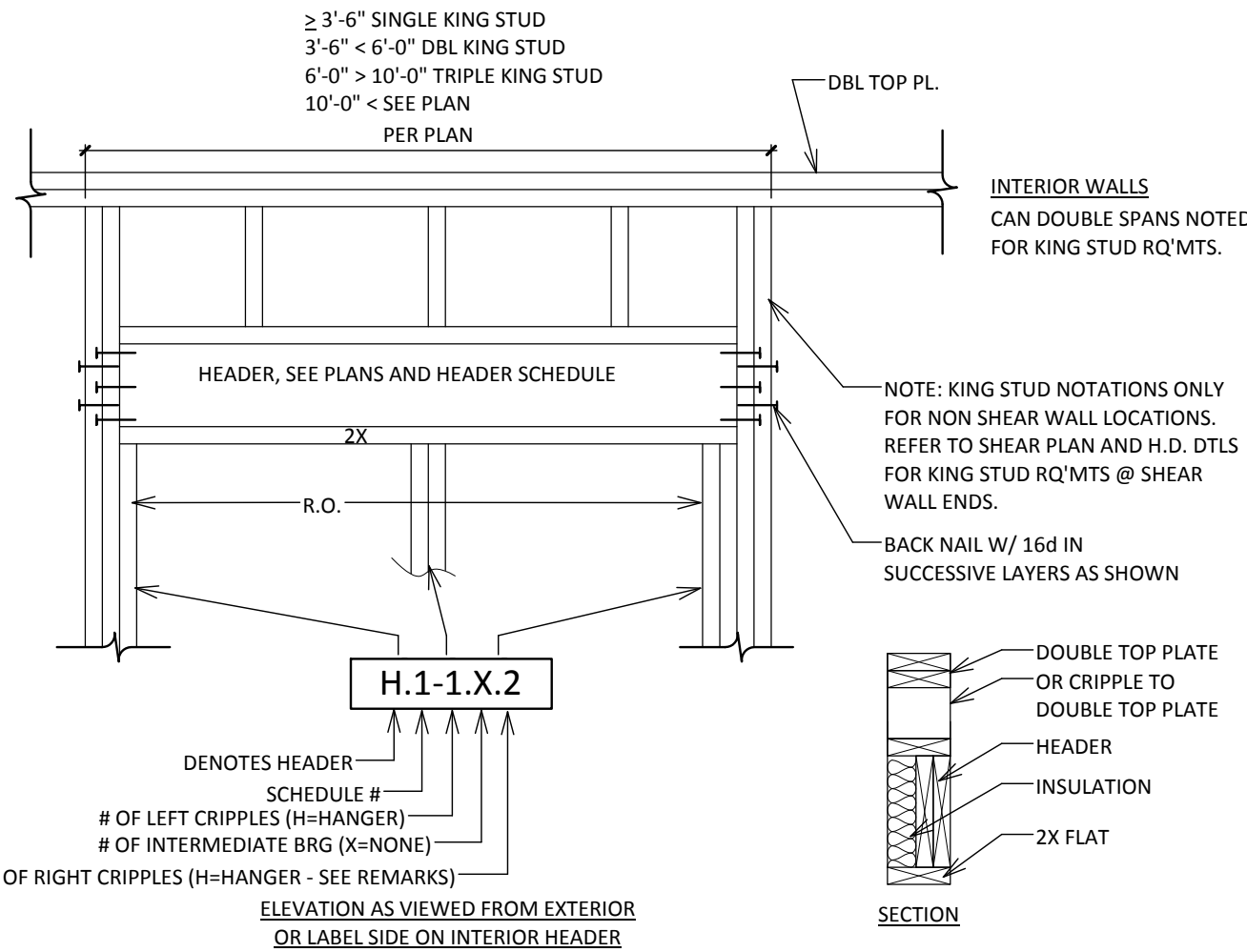
7 ROOF FRAMING PLAN - MAINT. BLDG
1/4" = 1'-0"



2 SLAB TIE IN
1" = 1'-0"

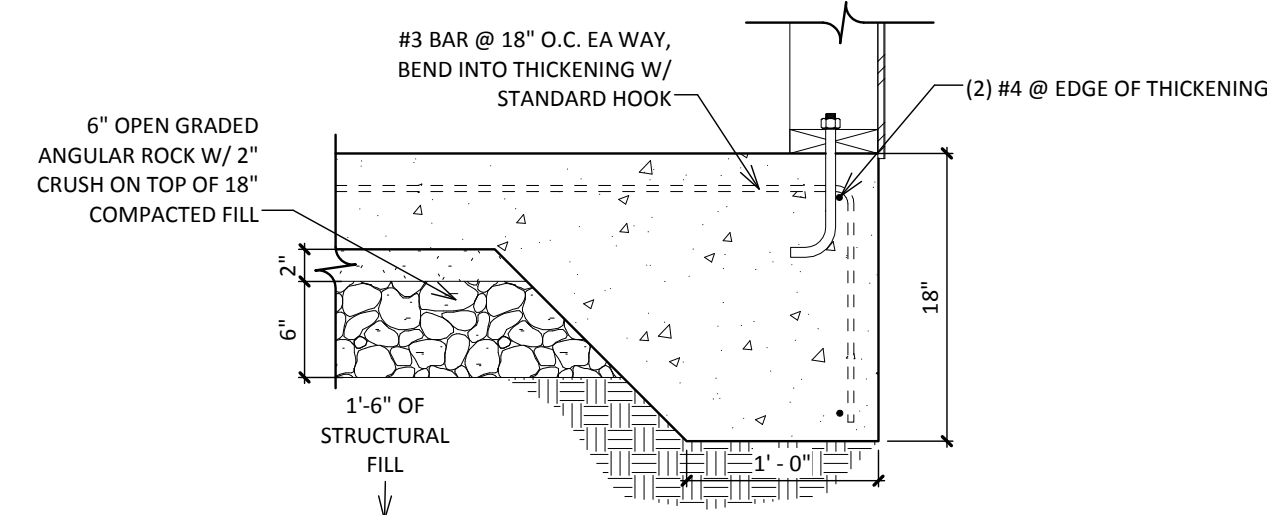


4 OUTLOOKER DETAIL, TYP - MAINT. BLDG
1" = 1'-0"

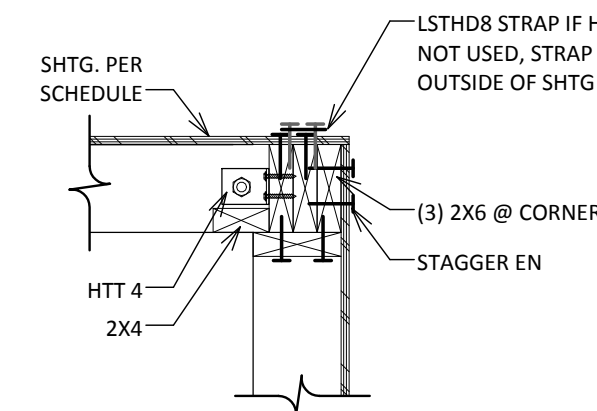


8 HEADER/BREAM DETAIL - MAINT. BLDG
3/4" = 1'-0"

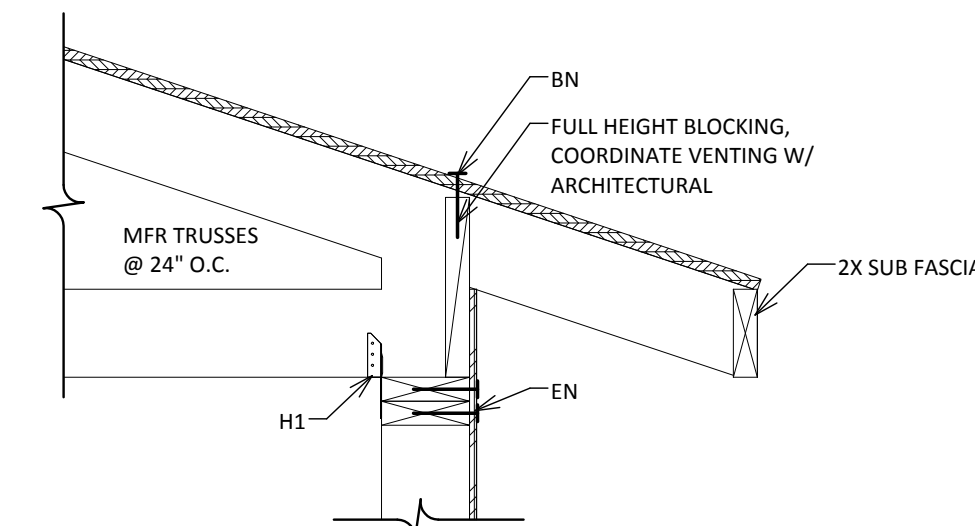
HEADER SCHEDULE		
TAG	SIZE	SPEC
H3	(3) 1 3/4x9 1/4	LVL 2.0F 2850 Fb
H4	(2) 2X8	DOUG/ FIR #2
H5	(2) 2X6	DOUG/ FIR #2



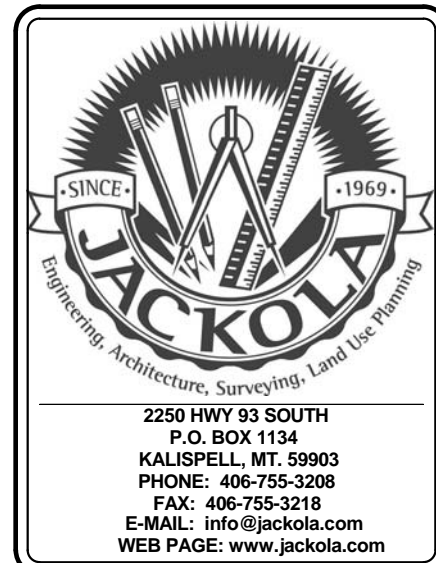
3 FOUNDATION SECTION @ GRID G
1" = 1'-0"



5 HD @ CORNERS
1" = 1'-0"



6 TYPICAL DETAIL @ PLATE
1" = 1'-0"



MONTANA FISH, WILDLIFE AND PARKS
ADMIN BLDG, MAINT. BLDG & HOST PAD
HARRY HORN RD
BIG FORK, MT

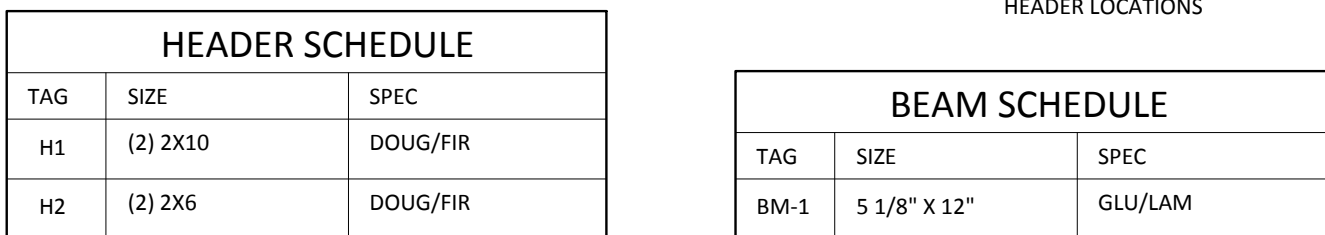
SHEET
MAINT. BLDG
FOUNDATION
AND ROOF
FRAMING ADD
ALT. 1

DRAWN: KBH
CHECKED: KBH
DATE: 03/18/15
JOB#: 131212

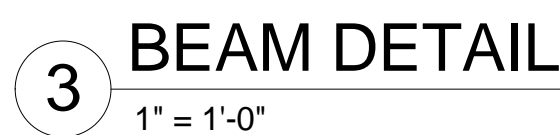
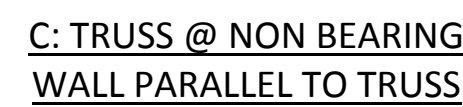
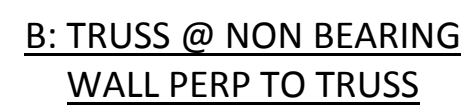
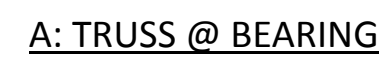
REVISIONS:

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S1.10
SHEET 21 OF 31



2 $3/4" = 1'-0"$



MONTANA FISH, WILDLIFE AND PARKS
ADMIN BLDG, MAINT. BLDG & HOST PAD

SHEET

ADMIN BLDG
ROOF FRAMING
PLAN

DRAWN:	KBH
CHECKED:	KBH
DATE:	03/18/15
JOB#:	131212

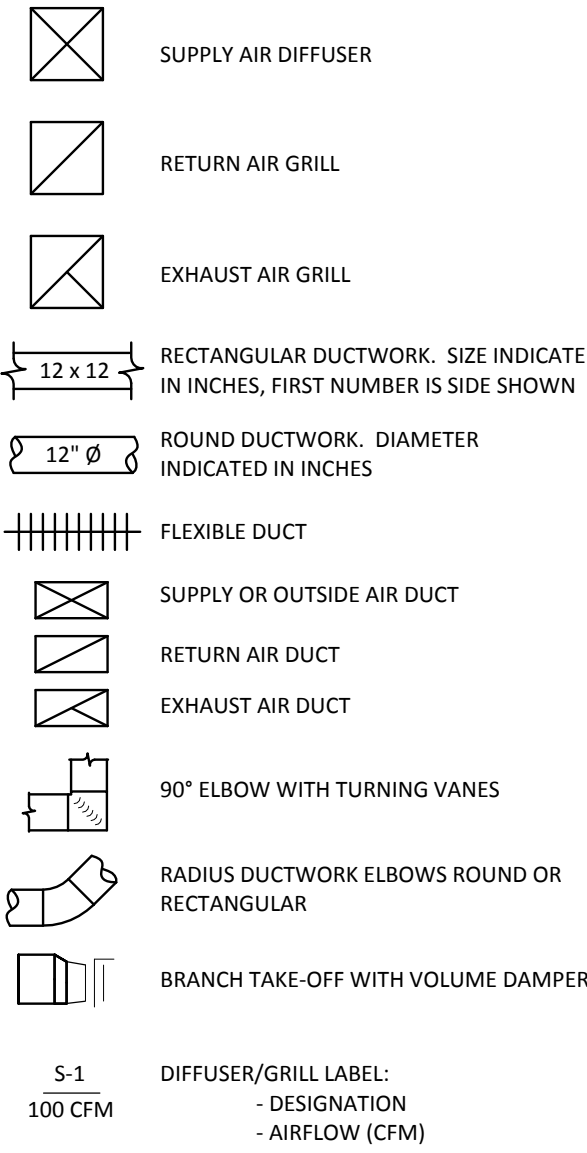
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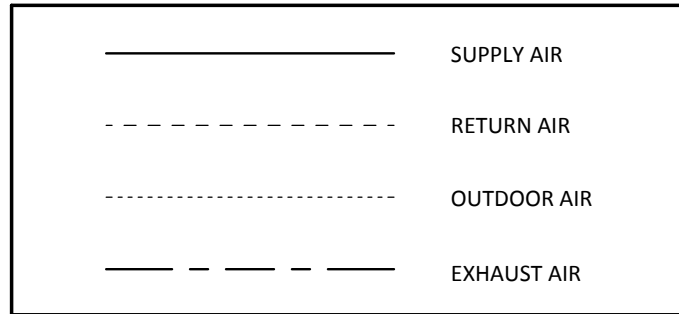
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SHEET 22 OF 31

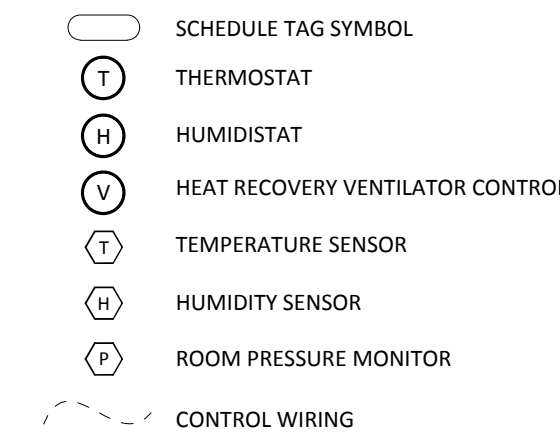
DUCTWORK



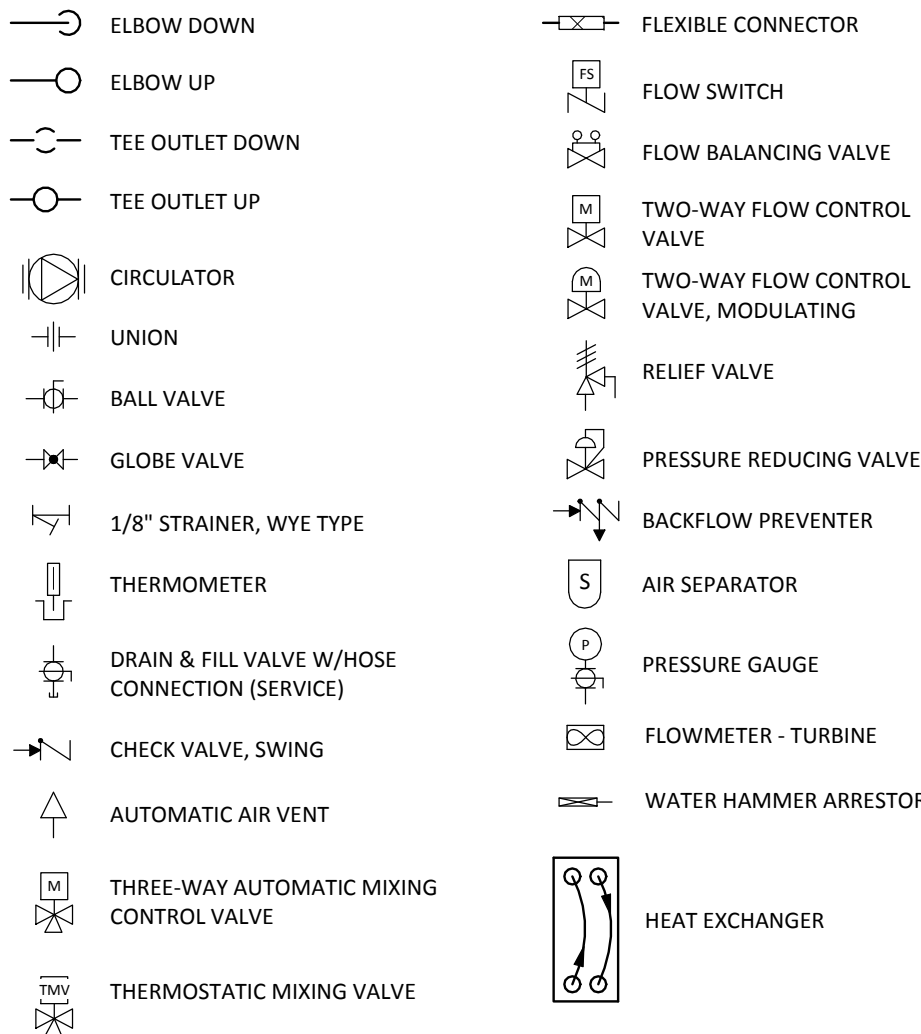
MECHANICAL DUCT LEGEND



MISC. SYMBOLS



PIPING SYMBOLS



GENERAL MECHANICAL NOTES

1. COMPLETE INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE PER THE STATE BUILDING, MECHANICAL ENERGY, FIRE, PLUMBING AND HEALTH CODES, AND REGULATIONS AS ADOPTED BY LOCAL JURISDICTIONS.
2. ALL EQUIPMENT SHALL BE THE CAPACITY AND TYPE AS SHOWN ON THE EQUIPMENT SCHEDULE AND SHALL BE THE LISTED MANUFACTURER AND MODEL NUMBER OR SHALL BE AN EQUAL APPROVED BY THE OWNER/ENGINEER.
3. CONTRACTOR IS TO BRING UP THE DISCREPANCIES AND ITEMS WHICH ARE NOT SPECIFICALLY CALLED FOR OR SHOWN BUT ARE REQUIRED FOR A COMPLETE MECHANICAL SYSTEM. ALL SUCH ITEMS REQUIRED FOR A COMPLETE SYSTEM READY FOR THE OWNER'S BENEFICIAL USE SHALL BE FURNISHED AND INSTALLED INCLUDING ALL SUCH DISCREPANCY ITEMS MENTIONED ABOVE, AT NO ADDITIONAL COST TO THE OWNER AND PER LOCAL CODES, MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE STANDARDS WITH THE ARCHITECT/ENGINEER'S APPROVAL.
4. ALL EQUIPMENT SUPPLIED FOR THESE SPECIFICATIONS SHALL BE FREE FROM DEFECTS IN MATERIAL, WORKMANSHIP, AND TITLE, AND SHALL BE OF THE KIND AND QUALITY DESCRIBED HEREIN. IF IT APPEARS WITHIN ONE YEAR FROM DATE OF FINAL ACCEPTANCE THAT EQUIPMENT DOES NOT MEET THE WARRANTIES ABOVE, THE CONTRACTOR SHALL IMMEDIATELY CORRECT ANY DEFECT AND SHALL RESTORE THE SYSTEM TO THE ORIGINAL SATISFACTORY CONDITIONS AT HIS EXPENSE. THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF OTHER WARRANTIES, WHETHER WRITTEN, ORAL, IMPLIED, OR STATUTORY. NO WARRANTY OR MERCHANT ABILITY OF FITNESS FOR PURPOSE SHALL APPLY (THE WARRANTY SHALL START FROM THE TIME OF ARCHITECT/ENGINEER'S FINAL ACCEPTANCE).
5. ENTIRE INSTALLATION OF ALL EQUIPMENT, CONTROL, PIPING, DUCTWORK, AND RELATED ACCESSORIES SHALL BE PER BASIC OWNER'S STANDARDS. MECHANICAL CONTRACTOR IS TO FAMILIARIZE HIMSELF WITH THESE STANDARDS.
6. MECHANICAL CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ROUTING AND INTALLATION FEASIBILITY OF ALL EQUIPMENT, PIPING, AND DUCTWORK; AND INCLUDE IN HIS BID ADDITIONAL PIPING, DUCTWORK, FITTINGS, OFFSETS, ETC. WHICH MIGHT BE REQUIRED FOR A COMPLETE SYSTEM READY FOR OWNER'S BENEFICIAL USE.
7. COORDINATE THE CONSTRUCTION SCHEDULE WITH THE GC AND PERFORM ALL REQUIRED WORK IN STRICT ACCORDANCE WITH THE OWNER'S SCHEDULE.
8. MECHANICAL CONTRACTOR SHALL PAY FOR AND OBTAIN ALL REQUIRED PERMITS AND CERTIFICATES REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.
9. HVAC NOTES:
A. PROVIDE FLEXIBLE CONNECTION IN ALL DUCTS CONNECTING TO AIR MOVING EQUIPMENT AS CLOSE TO FAN AS POSSIBLE. FLEXIBLE CONNECTION SHALL CONSIST OF 6" OR MORE OF AIR TIGHT, FIRE PROOF FLEXIBLE NEOPRENE COATED WOVEN FIBROUS GLASS MATERIAL. VENT FABRICS, INC. OR APPROVED EQUAL.
B. ALL DUCTWORK SHALL BE SHEET METAL.
C. ALL SUPPLY & RETURN FLEXIBLE DUCTS SHALL BE CONSTRUCTED OF DOUBLE LAMINATION OF POLYESTER ENCAPSULATED STEEL WIRE HELIX FOR INNER CORE HIGH DENSITY FIBERGLASS INSULATION AND GRAY POLYESTER FILM WITH SPIRAL REINFORCEMENTS, EQUAL TO ATCO-70 SERIES (MIN. POS. PRESS. = 6" W.G. NEG. PRESS. = 0.75" W.C. & R-5.79).
D. SEAL ALL DUCTWORK JOINTS WITH TUFF-BOND #12 SEALER AND DURO-DYNE TYPE FT-2 TAPE OR EQUAL.
E. ALL EQUIPMENT, DUCTWORK AND PIPING SHALL BE STRUCTURALLY SUPPORTED AND SECURELY FASTENED TO BUILDING STRUCTURE IN AN ACCEPTABLE MANNER TO OWNER, ARCHITECT, ENGINEER AND LOCAL JURISDICTION AND SHALL BE SEISMICALLY BRACED PER THE SMACNA AND/OR REQUIRED BY LOCAL JURISDICTIONS.
F. PROVIDE LOCKABLE VOLUME DAMPERS IN ALL AIR DISTRIBUTION OUTLETS.
G. DUCT HANGERS, SUPPORTS AND METHODS OF INSTALLATION SHALL CONFORM TO ASHRAE & SMACNA RECOMMENDATIONS.
H. DUCT SIZES SHOWN ON PLANS INDICATE INSIDE FREE AREA.
I. ALL DUCTWORK SHALL BE CLASS-1 AIR DUCT AS APPROVED BY U.L.-181.
J. ALL SQUARE ELBOWS SHALL HAVE TURNING VANES.
K. OSA DUCTWORK IN UNHEATED SPACES AND SUPPLY AIR IN ANY SPACE SHALL HAVE INSULATION WITH VAPOR BARRIER JACKET WITH MINIMUM THERMAL RESISTANCE VALUE OF "R-7". INTERIOR SOUNDLINING WITH MINIMUM "R-7" SATISFIES THE INSULATION REQUIREMENT WHICH MAY BE USED IN LIEU OF EXTERIOR INSULATION.
10. ALL FIRE RATED STRUCTURE SHALL BE FIRE DAMPERED AS REQUIRED BY THE JURISDICTION.
11. FLEXIBLE DUCTS SHALL HAVE MAXIMUM 6 FEET LENGTH UNLESS SHOWN OTHERWISE AND SHALL NOT PENETRATE THROUGH ANY FIRE RATED WALLS. DO NOT INSTALL FLEXIBLE DUCTS WITHIN 6 FEET OF HEATING ELEMENT.
12. TESTING: REFRIGERATION PIPING SHALL BE TESTED UNDER PRESSURE AND PROVEN TO BE LEAK FREE. HVAC SYSTEM SHALL BE STARTED UP, BALANCED TO DESIGN SPECIFICATIONS, AND OPERATED IN BOTH HEATING AND COOLING MODES. REFRIGERATION SYSTEM SHALL BE STARTED UP AND BROUGHT DOWN TO DESIGN TEMPERATURE.
13. MECHANICAL, HVAC, AND PLUMBING ELEMENTS SHALL AT NO TIME COME IN CONTACT WITH CEILING CONSTRUCTION EXCEPT AS NECESSARY PENETRATIONS MAY REQUIRE.
14. ACCESS SHALL BE PROVIDED BY GC AS REQUIRED FOR INSTALLATION AND MAINTENANCE OF MECHANICAL, ELECTRICAL, AND OTHER ELEMENTS WITHIN CEILING SPACE AND AS REQUIRED BY CODE. LOCATIONS FOR SPECIAL ACCESS DOORS, HATCHES, ETC. SHALL BE COORDINATED WITH OTHER TRADES.
15. INSPECTIONS, AS REQUIRED BY LOCAL AUTHORITIES, SHALL BE COORDINATED BY GC PRIOR TO CLOSING OF CEILING.
16. SHOP DRAWINGS FOR ALL RELATED TRADES (PLUMBING, SPRINKLER, HVAC) SHALL BE SUBMITTED FOR REVIEW/APPROVAL PRIOR TO MANUFACTURING AND INSTALLATION.
17. ALL HVAC ELEMENTS SHALL MATCH ADJACENT WALL OR CEILING FINISH COLOR, INSTALLED FLUSH AND TRUE AND CENTERED WITHIN THE CEILING GRID. LOCATIONS SHALL BE PER APPROVED MECHANICAL PLANS.
18. INSULATION OF COLD WATER LINES SHALL BY PROVIDED TO PREVENT CONDENSATION DAMAGE AND IN OBSERVANCE OF ENERGY CONSERVATION PRACTICES, HOT WATER HEATING LINES SHALL BE INSULATED - SEE SPECIFICATIONS.
19. THERMOSTATS SHALL BE MOUNTED AT 4'-0" A.F.F. LOCATIONS PER MECHANICAL PLAN AND TO BE COORDINATED BY GC WITH OTHER TRADES AND APPROVED BY BUILDING MANAGEMENT REPRESENTATIVE AND ARCHITECT. MOUNT TO ALIGN VERTICALLY WITH LIGHT SWITCHES.
20. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO THE OWNER AT JOB COMPLETION. ALL PRODUCT WARRANTY REGISTRATION CARDS, APPLICATIONS, AND CERTIFICATES SHALL BE COMPLETED AND TURNED OVER TO THE OWNER.

MECHANICAL ABBREVIATIONS

ABV	ABOVE	ESP	EXTERNAL STATIC PRESSURE	NIC	NOT IN CONTRACT
AC	ALTERNATING CURRENT	ET	EXISTING AIR TERMINAL	NO.	NUMBER
AD	ACCESS DOOR, AUTOMATIC DAMPER	EWI	ENTERING WATER TEMPERATURE	NTS	NOT TO SCALE
AFF	ABOVE FINISHED FLOOR	EXIST	EXISTING	O/A	OUTDOOR AIR
AHU	AIR HANDLING UNIT	F	DEGREES FAHRENHEIT	OC	ON CENTER
ASL	ACOUSTICAL LINING	FC	FLEXIBLE CONNECTOR	OD	OUTER DIAMETER
AMP	AMPERE	FD	FIRE DAMPER	OPNG	OPENING
APPROX	APPROXIMATE OR APPROXIMATELY	FIN	FINISH OR FINISHED	PCF	POUNDS PER CUBIC FOOT
ARCH.	ARCHITECT OR ARCHITECTURAL	FL	FLOOR	PF	POWER FACTOR
AUTO	AUTOMATIC	FLEX	FLEXIBLE	PH or Ø	PHASE (ELECTRICAL)
BE	BOTTOM ELEVATION	FGB	FLAT ON BOTTOM	PRESS.	PRESSURE
BHP	BRAKE HORSEPOWER	FOT	FLAT ON TOP	PSI	POUNDS PER SQUARE INCH
BLDG	BUILDING	FS	FEET PER MINUTE	R/A	RETURN AIR
BOD	BOTTOM OF DUCT	FT	FOOT OR FEET	REQD.	REQUIRED
BQG	BOTTOM OF GRILLE	FWE	FURNISH WITH EQUIPMENT	RG	RETURN GRILLE
BTU	BRITISH THERMAL UNIT	GA	GAUGE	RH	RELATIVE HUMIDITY
BTUH	BRITISH THERMAL UNIT PER HOUR	GAL	GALLON	RPM	REVOLUTIONS PER MINUTE
CC	COOLING COIL	GPM	GALLONS PER MINUTE	S/A	SUPPLY AIR
CD	CEILING DIFFUSER	HC	HEATING COIL	SF	SERVICE FACTOR
CEIL	CEILING	HOR	HORIZONTAL	SP	STATIC PRESSURE
CFM	CUBIC FEET PER MINUTE	HP	HEAT PUMP OR HORSEPOWER	SPEC	SPECIFICATIONS
CL	CENTER LINE	HR	HOUR	STD	STANDARD
CO	CARBON MONOXIDE	HRV	HEAT RECOVERY VENTILATOR	SVK	SOLENOID VALVE KIT
CO2	CARBON DIOXIDE	HVAC	HEATING, VENTILATING, AND AIR CONDITIONING	TAB	TESTING, ADJUSTING, AND
CR	CEILING REGISTER	HZ	ALTERNATING CURRENT FREQUENCY	TEMP	TEMPERATURE
CP	CIRCULATION PUMP	I.D.	INSIDE DIAMETER	TRF	TRANSFER
DB	DRY BULB	IN	INCH	TOG	TOP OF DUCT
DC	DIRECT CURRENT	IN H2O	INCHES OF WATER COLUMN	TOG	TOP OF GRILLE
DIA	DIAMETER	INSUL	INSULATE OR INSULATION	TSP	TOTAL STATIC PRESSURE
DN	DOWN	KW	KILOWATT	TYP	TYPICAL
DPR	DAMPER	KWH	KILOWATT-HOUR	V	VOLT
DWG	DRAWING	LAT	LEAVING AIR TEMPERATURE	VEL	VELOCITY
DX	DIRECT EXCHANGE	LB	POUND	VENT	VENT, VENTILATE, VENTILATING
E/A	EXHAUST AIR	LIN	LINEAR	OR VENTILATION	
EA	EACH	LVG	LEAVING	VFD	VARIABLE FREQUENCY DRIVE
EAT	ENTERING AIR TEMPERATURE	LWT	LEAVING WATER TEMPERATURE	VOL	VOLUME
EL	ELEVATION	MAX	MAXIMUM	W	WATT
ELEV	ELEVATOR	MD	MANUAL DAMPER	WB	WET BULB
ELEC	ELECTRIC OR ELECTRICAL	MECH	MECHANICAL	WG	WATER GAUGE
ENT	ENTERING	MIN	MINIMUM	WMS	WIRE MESH SIZE
EQUIP	EQUIPMENT	NC	NORMALLY CLOSED	WT	WEIGHT
ERV	EXHAUST REGISTER				
ERV	ENERGY RECOVERY VENTILATOR				

CODE COMPLIANCE

BUILDING MECHANICAL SYSTEMS ARE DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODES:

- 2012 INTERNATIONAL MECHANICAL CODE
- 2012 UNIFORM PLUMBING CODE
- 2012 IECC INTERNATIONAL ENERGY CONSERVATION CODE
- ANSI/ASHRAE/IESNA STANDARD 90.1-2010 ENERGY STANDARD FOR BUILDINGS EXCEPT FOR LOW-RISE RESIDENTIAL BUILDINGS
- ANSI/ASHRAE STANDARD 62.1-2010 VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY

HVAC DESIGN CRITERIA

KALISPELL, MONTANA	
ANNUAL DESIGN CONDITIONS: ASHRAE FUNDAMENTALS 2005	
WEATHER STATION - KALISPELL, MT WMOH 727790	
ELEVATION: 2966' LAT: 48.28N LONG: 114.27W	
WINTER: -10.8 (99.6%)	
SUMMER: 89.1 DRY BULB (0.4%)	
62.3 WET BULB (0.4%)	
INDOOR DESIGN CONDITIONS:	
WINTER: 70 ± 2° F	
SUMMER: 75 ± 2° F	

CONTROL SEQUENCE

CONTROL SEQUENCE OF OPERATION

1. HVAC SYSTEM CONTROL SEQUENCES

- **MINI-SPLIT HEAT PUMP/AC SYSTEM CONTROL:** EACH COMPACT CASSETTE ZONE (OFFICES, COMMON SPACE) SHALL BE CONTROLLED BY A USER ADJUSTABLE THERMOSTAT TO PROVIDE HEATING OR COOLING TO MAINTAIN THE SETPOINT TEMPERATURE.

OCCUPIED SETTINGS: M-F, 7:00AM - 6:00PM, HEATING: 68°F, COOLING: 75°F.
UNOCCUPIED SETTINGS: HEATING: 65°F, COOLING: 80°F.

VENTILATION AIR CONTROL: EACH COMPACT CASSETTE SHALL INCLUDE A FRESH AIR KIT THAT IS CONNECTED TO A COMMON OSA DUCT AND DAMPER. DURING OCCUPIED PERIODS AND WHEN THE OSA TEMPERATURE IS 32°F OR ABOVE, THE DAMPER SHALL BE OPEN.

- **EXHAUST FAN EF-3, EF-4 CONTROL:** THESE EXHAUST FANS SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS TO PROVIDE BALANCE VENTILATION AIR TO BUILDINGS.

- **EXHAUST FAN/LIGHT/HEATER EF-1, EF-2 CONTROL:** FAN AND LIGHT SHALL BE SWITCHED WITH WALL MOUNTED OCCUPANCY SWITCH AND SHALL RUN FOR 10 MINS AFTER SPACE IS EMPTY. EACH HEATER SHALL BE ENGAGED BASED ON SPACE TEMPERATURE. A WALL MOUNTED TEMPERATURE SENSOR IN EACH SPACE SHALL BE CONNECTED TO A REMOTE THERMOSTAT LOCATED IN THE MECHANICAL ROOM. TEMPERATURE SHALL BE SET TO 68°F.

- **ELECTRIC BASEBOARD HEATER CONTROL:** ELECTRIC BASEBOARDS IN OFFICES AND COMMON AREA ARE TO PROVIDE BACKUP HEAT TO SPACE AND SHALL BE SET TO 60°F. THERMOSTATS ARE MOUNTED ON EACH BASEBOARD. BASEBOARD IN MECHANICAL ROOM SHALL BE SET TO 65°F.

COMPACT CASSETTE SCHEDULE

TAG	DESCRIPTION	BASIS OF DESIGN		AREA SERVED	OSA (CFM)	FAN SPEED	COOLING CAPACITY (BTU/HR)	HEATING CAPACITY (BTU/HR)	ELECTRICAL DATA V/Ø/Hz	MOP	FLA	WEIGHT (LBS)	NOTES
		MANUFACTURER	MODEL										
CC-1	COMPACT CASSETTE	FUJITSU GENERAL LIMITED	AUJ12RLF	COMMON AREA 101	30	MED	12000	13500	208-230/1/60	20	0.19	33	1
CC-2	COMPACT CASSETTE	FUJITSU GENERAL LIMITED	AUJ7RLF	OFFICE 103	10	LOW	7000	8100	208-230/1/60	15	0.15	33	1
CC-3	COMPACT CASSETTE	FUJITSU GENERAL LIMITED	AUJ7RLF	OFFICE 102	10	LOW	7000	8100	208-230/1/60	15	0.15	33	1

NOTES:

1. INCLUDE: GRILLE, WIRED CONTROL T-STAT, AND FRESH AIR KIT.

CONDENSING UNIT / HEAT PUMP SCHEDULE

TAG	DESCRIPTION	SYSTEM SERVED	BASIS OF DESIGN		NOMINAL SIZE	TOTAL COOLING CAP. (MBH)	SEER @ ARI	TOTAL HEATING CAP. (MBH)	HSPF	ELECTRICAL DATA V/Ø/Hz	MCA (A)	MOP (A)	WEIGHT (LBS)	NOTES
			MANUFACTURER	MODEL #										
HP-1	OUTDOOR HEAT PUMP	CC-1; CC-2; CC-3	FUJITSU GENERAL LIMITED	AQU24RLXF2	2 TON	24	18	24	9.5	208-230/1/60	17	25	124	1

NOTES:

1. INCLUDE WALL MOUNT BRACKETS AND COORDINATE REQUIRED BLOCKING WITH G.C.

EXHAUST FAN SCHEDULE

TAG	DESCRIPTION	BASIS OF DESIGN		AREA SERVED	DESIGN FLOW (CFM)	MOTOR HP	STATIC PRESSURE	ELECTRICAL DATA V/Ø/Hz	MOTOR FLA	MOP	WEIGHT (LBS)	NOTES
		MANUFACTURER	MODEL									
EF-1	CEILING MOUNTED EXHAUST FAN; HEATER; LIGHT COMBO	PANASONIC	FV-11VHL2	WOMEN'S RR 105	110	1492 WATTS	.1	120/1/60	12.5	20	22.7	
EF-2	CEILING MOUNTED EXHAUST FAN; HEATER; LIGHT COMBO	PANASONIC	FV-11VHL2	MEN'S RR 106	110	1492 WATTS	.1	120/1/60	12.5	20	22.7	
EF-3	CEILING MOUNTED EXHAUST FAN	PANASONIC	FV-05VQ5	MECH/STORAGE 104	50	11 WATTS	.1	120/1/60	.09	15	10.4	
EF-4	CEILING MOUNTED EXHAUST FAN	PANASONIC	FV-05VQ5	COMMON AREA 101	50	11 WATTS	.1	120/1/60	.09	15	10.4	

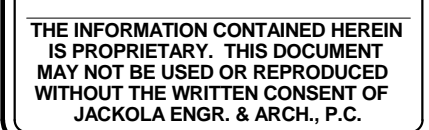
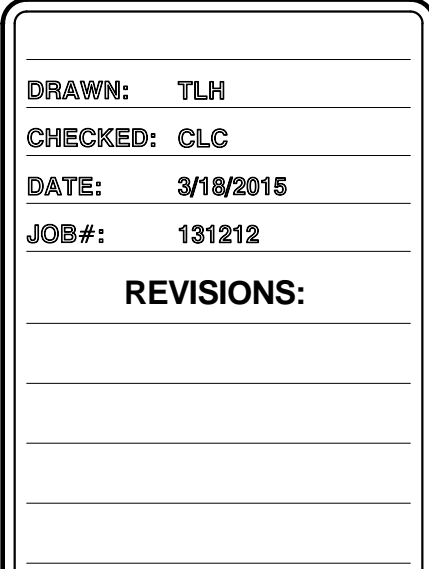
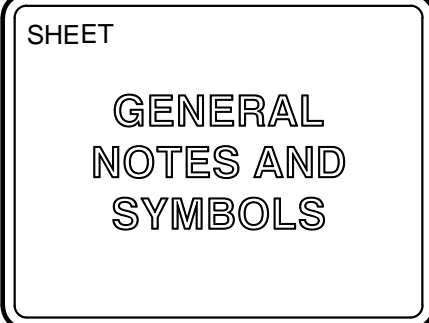
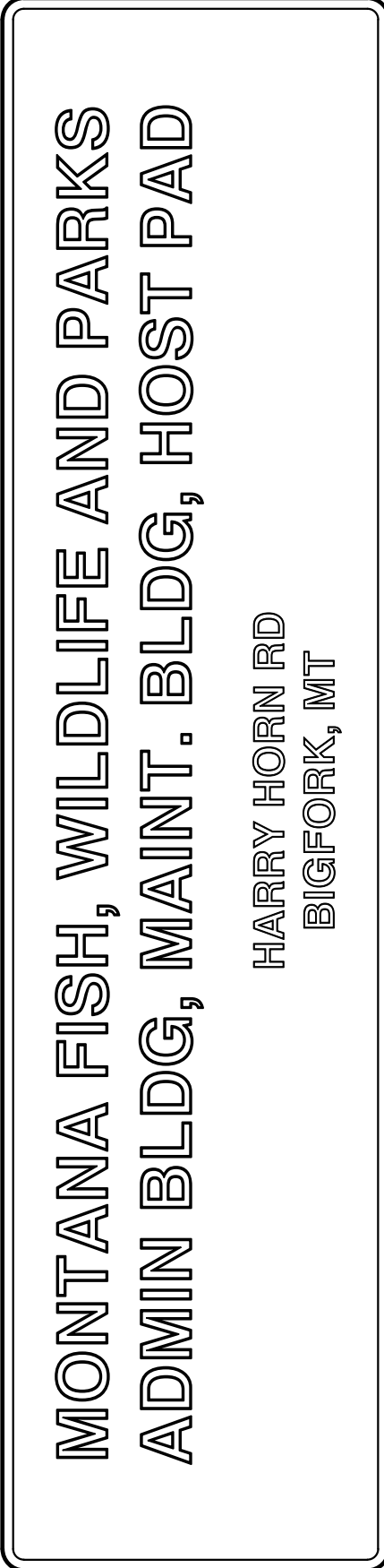
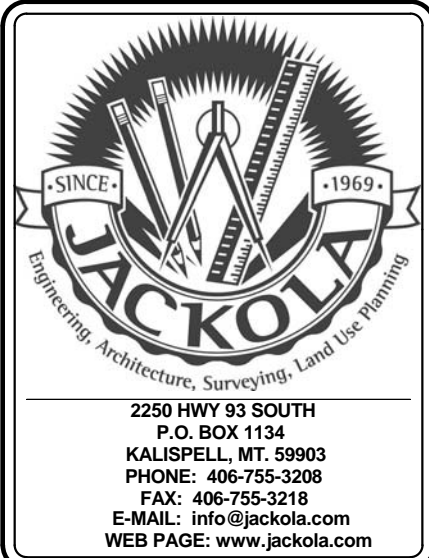
AIR INLETS AND OUTLETS SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	NECK SIZE	BORDER	NOTES
EH-1	STEEL ROOF CAP; EXHAUST	BROAN	634M	6"	ROOF MOUNTED	
EH-2	STEEL ROOF CAP; EXHAUST	BROAN	636	4"	ROOF MOUNTED	
IH-1	STEEL ROOF CAP; INTAKE	BROAN	634M	6"	ROOF MOUNTED	1

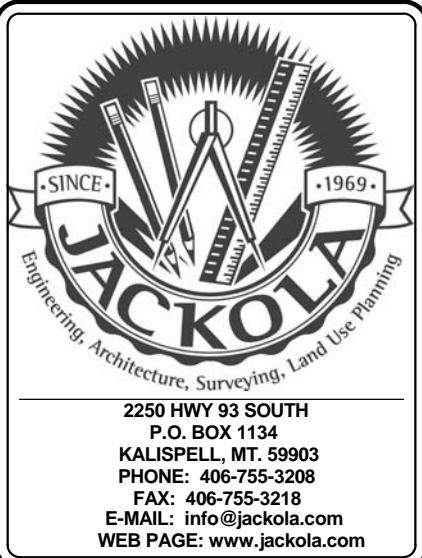
NOTES:

1. REMOVE BACKRAFT DAMPER

ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED IN THE DRAWINGS



MECHANICAL KEYNOTES	
1	CONTROL DAMPER ON VERTICAL PART OF 6"Ø OSA DUCT. SEE CONTROL SEQUENCE FOR OPERATION.
2	INCLUDE FRESH AIR KIT FOR COMPACT CASSETTE, TYP. CONNECT 4" OSA DUCT. INSULATE OSA DUCT PER SPECS
3	DROP PIPING IN WALL AND ROUTE TO HP-1.
4	6"Ø DUCT RISER TO HOOD MOUNTED ON ROOF, TYP. SEE MECHANICAL ROOF PLAN.
5	REFRIGERANT PIPING TO BE ROUTED ABOVE CEILING TO EACH COMPACT CASSETTE, TYP. SIZE BY MANUFACTURER, INSULATE PER SPECS.
6	4"Ø SCH. 40 PVC RADON PIPE RISER. COORDINATE WITH PLUMBING CONTRACTOR FOR EXACT LOCATION.
7	WALL MOUNTED TEMERATURE SENSOR TO CONTROL HEATER/FAN IN CEILING MOUNTED EXHAUST FAN. SEE CONTROL SEQUENCE ON M0.0



MONTANA FISH, WILDLIFE AND PARKS
ADMIN BLDG, MAINT. BLDG, HOST PAD

HARRY HORN RD
BIGFORK, MT

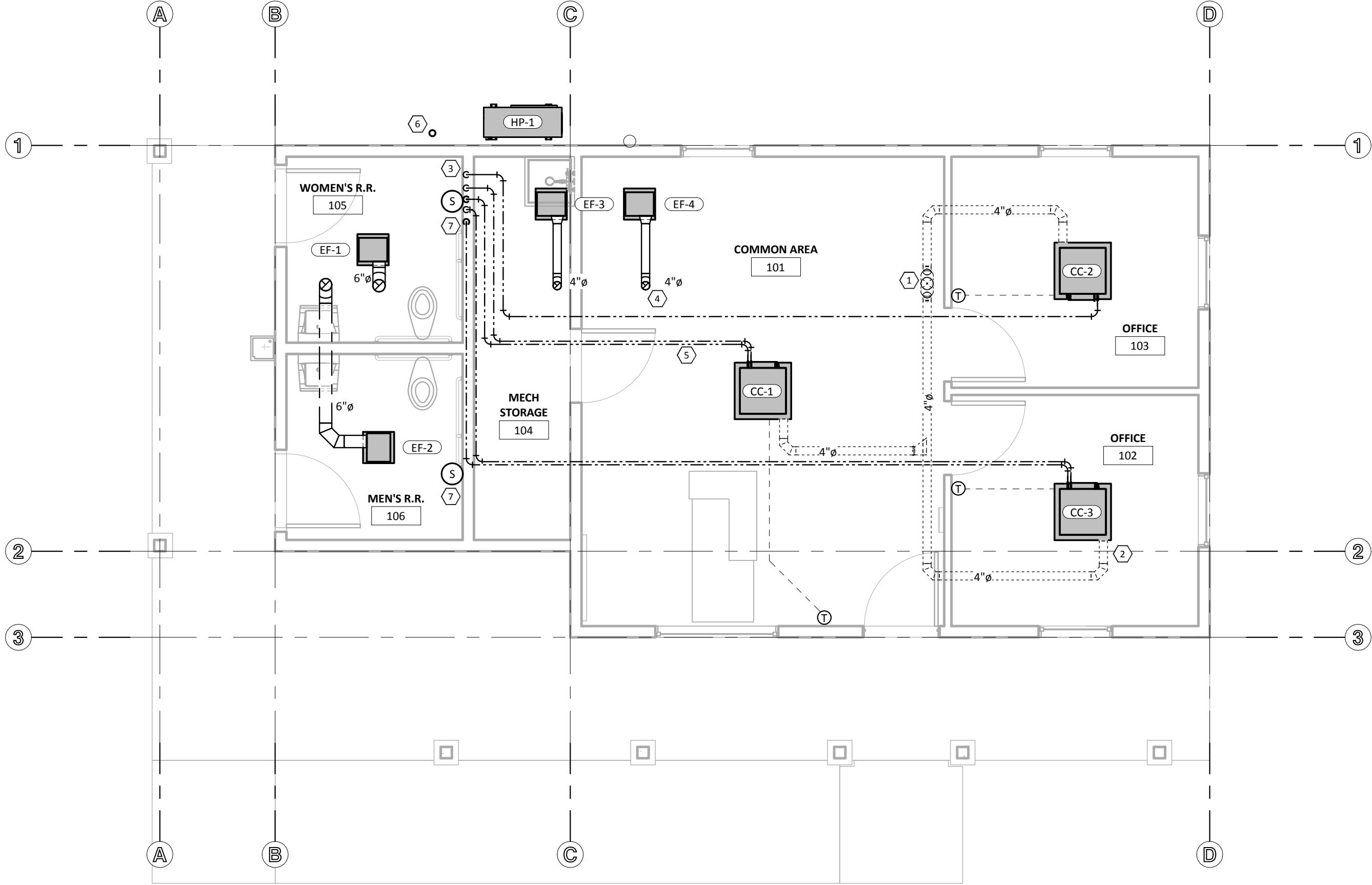
SHEET

ADMIN BLDG
HVAC PLAN

DRAWN:	TLH
CHECKED:	CLC
DATE:	3/18/2015
JOB#:	131212
REVISIONS:	
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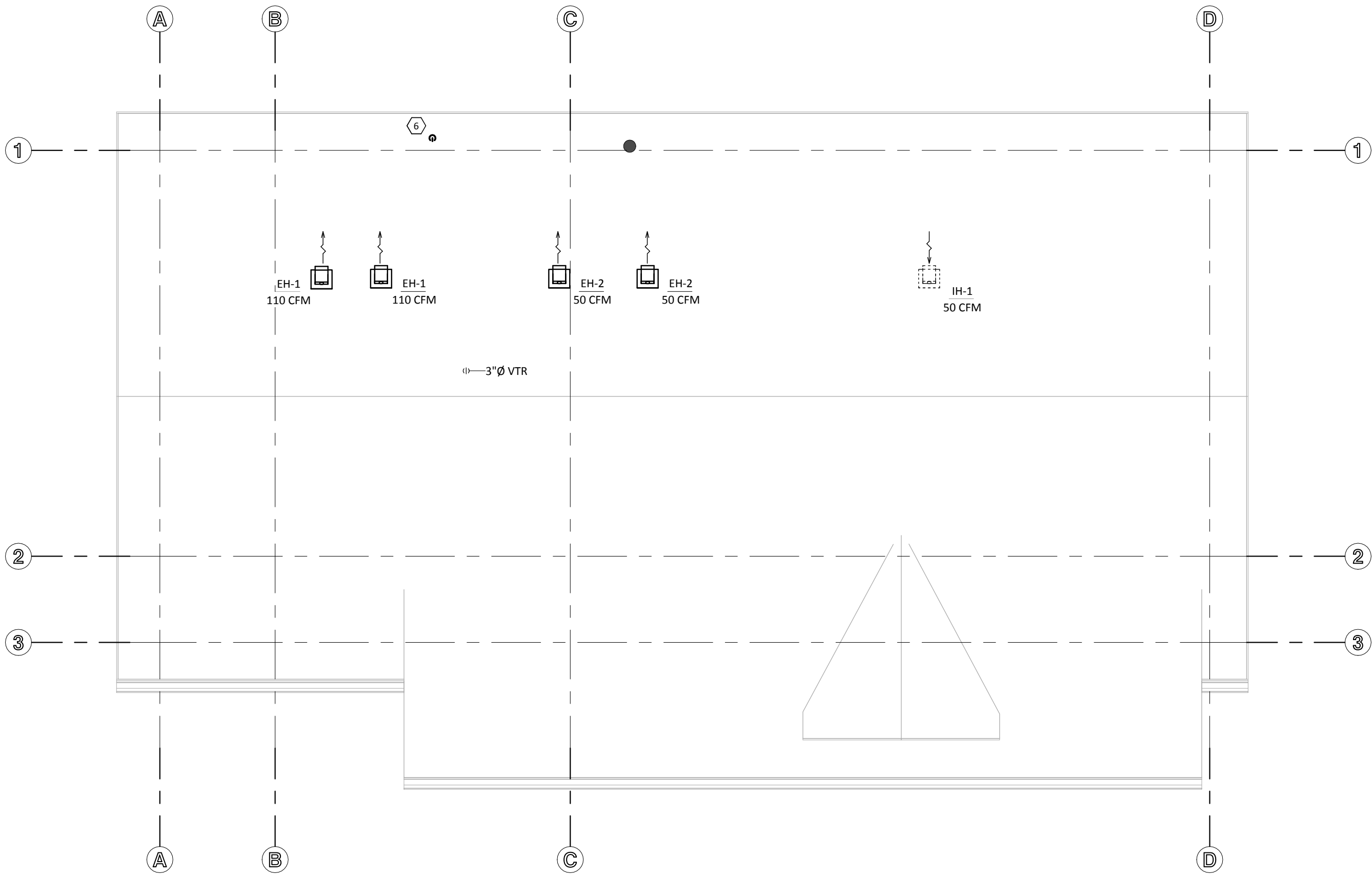
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SHEET 24 OF 31



1 ADMIN BLDG. HVAC PLAN

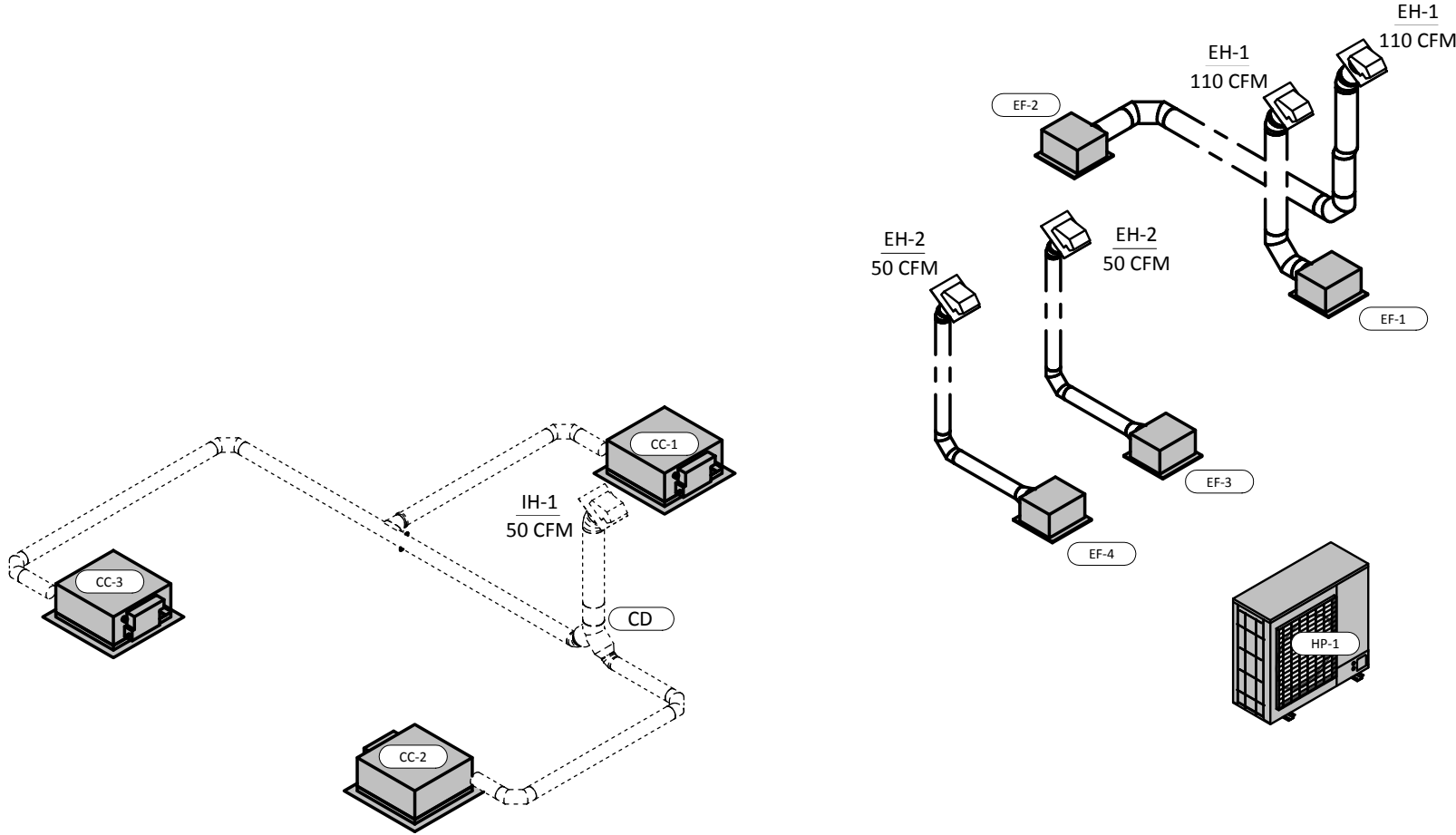
1/4" = 1'-0"

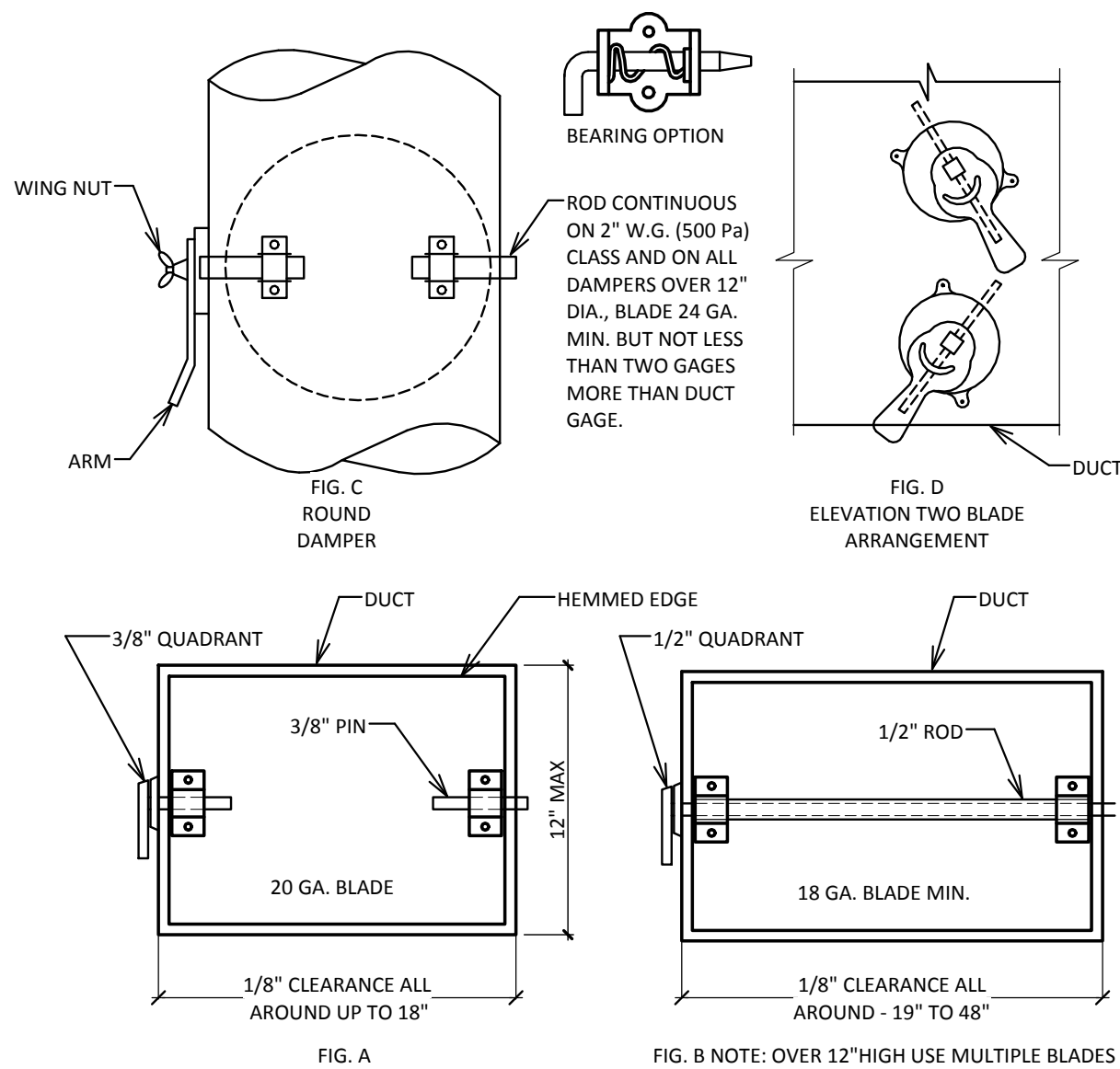


2 ADMIN BLDG. HVAC ROOF PLAN

1/4" = 1'-0"

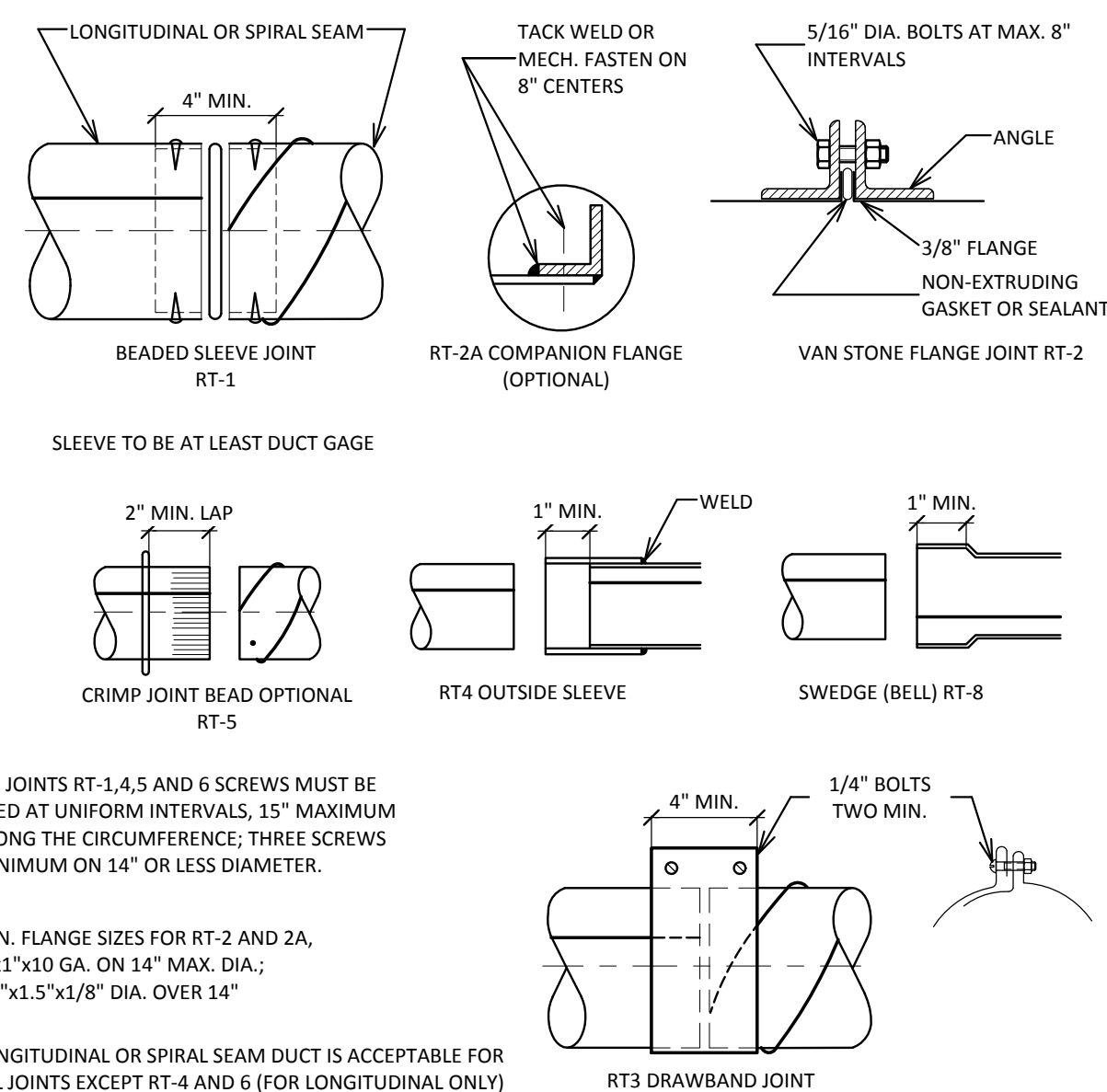
3 HVAC ISOMETRIC





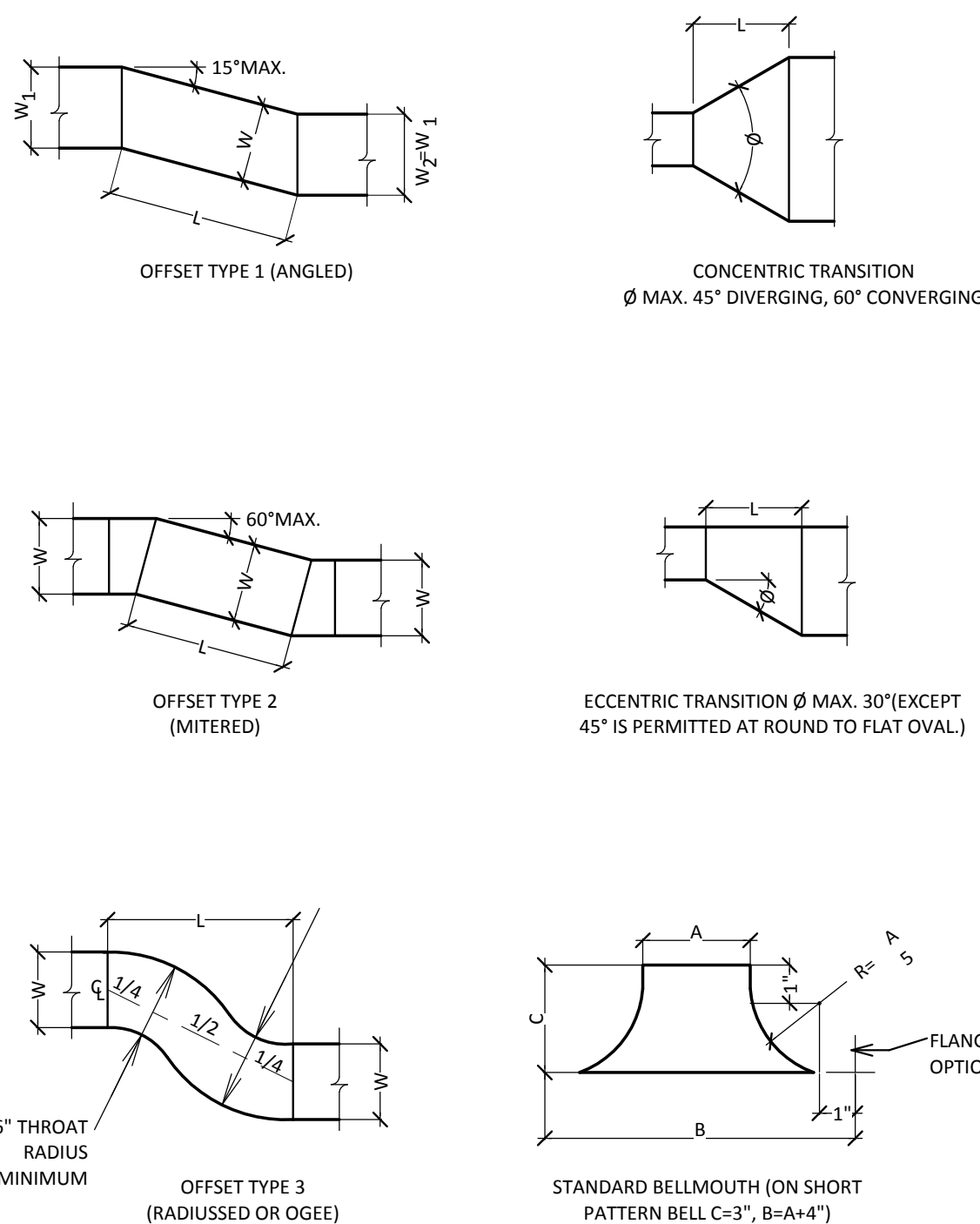
1. DAMPER HARDWARE MUST BE DURABLE AND INSTALLED PROPERLY.
2. DAMPERS MUST BE STABLE UNDER OPERATING CONDITIONS. ROUND AND RECTANGULAR DAMPER BLADES MUST BE STIFFENED BY FORMING OR OTHER METHOD IF REQUIRED FOR THE DUTY.
3. ALL SINGLE BLADE DAMPERS MUST HAVE A LOCKING DEVICE TO HOLD THE DAMPERS IN A FIXED POSITION WITHOUT VIBRATION.
4. DAMPER COMPONENT PENETRATION OF DUCTS MUST BE CLOSED, IN KEEPING WITH THE SEALING CLASSIFICATION APPLICABLE FOR THE PRESSURE CLASS. END BEARINGS OR OTHER SEALS ARE REQUIRED ON 3" W.G. (750 PA) STATIC PRESSURE CLASS.
5. THE INSTALLATION OF A DAMPER IN A LINED DUCT MUST NOT DAMAGE THE LINER OR CAUSE LINER EROSION.

1 VOLUME DAMPER DETAILS

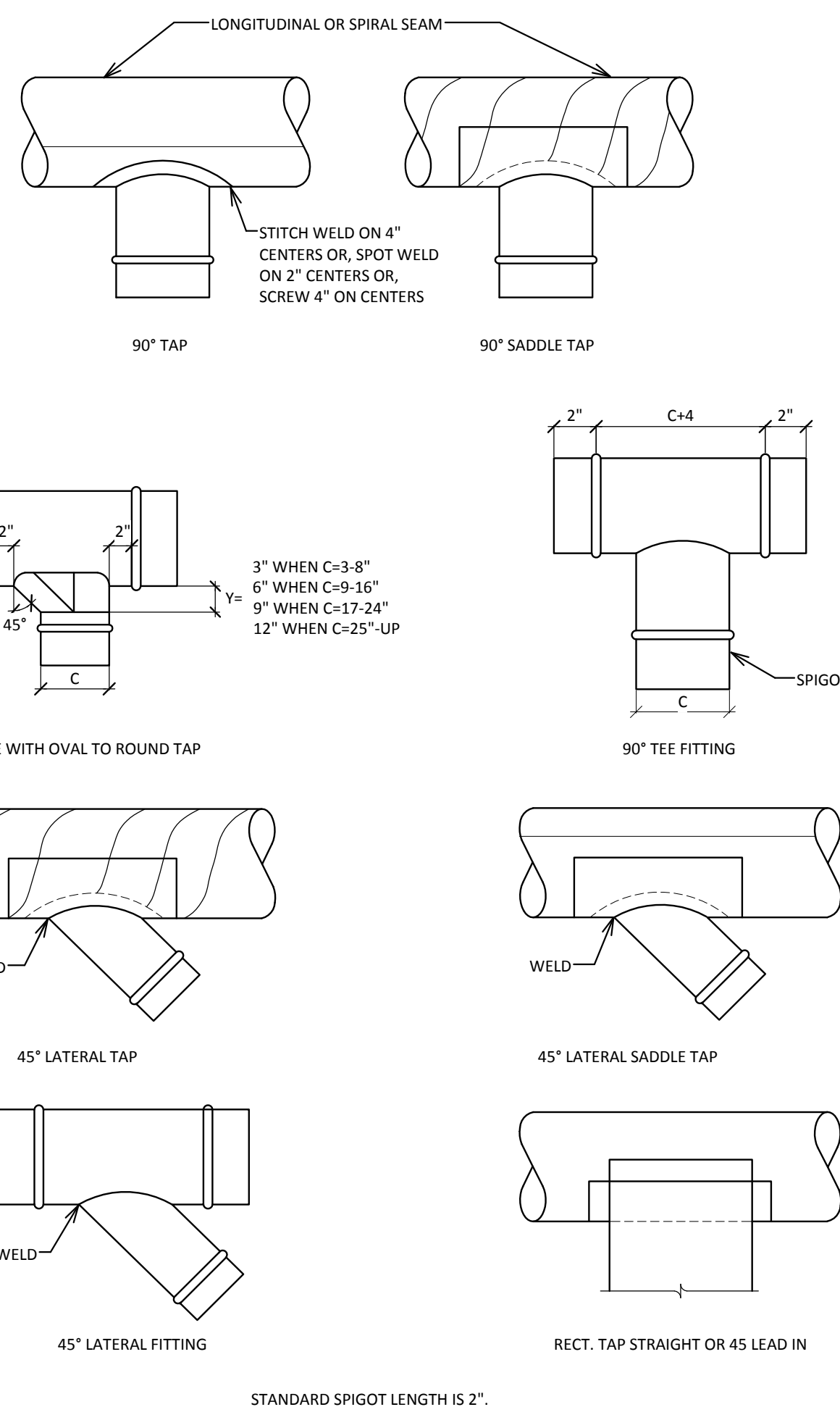


2 ROUND DUCT TRAVERSE JOINTS

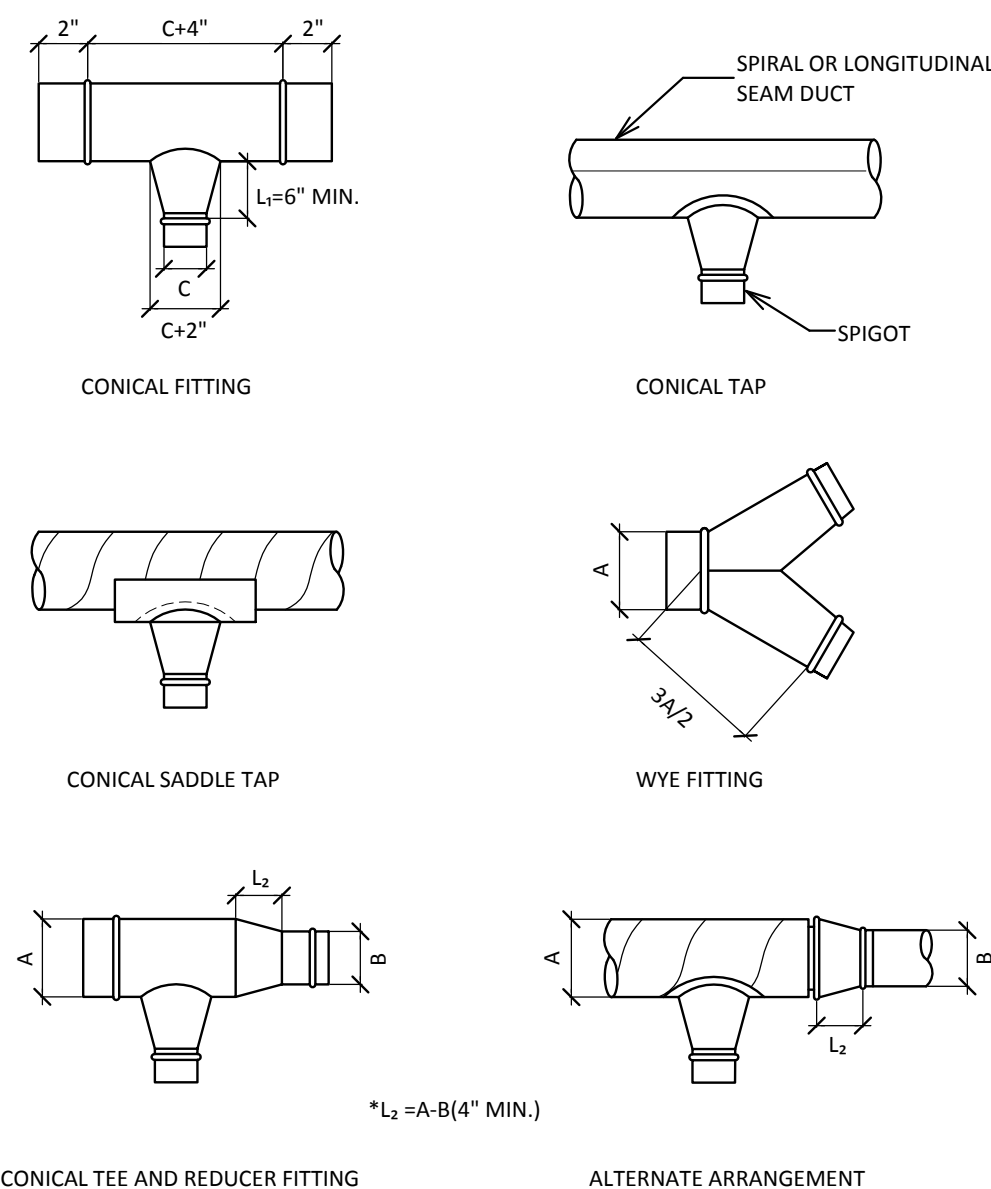
OFFSETS TYPE 2 AND 3 AND TRANSITIONS MAY HAVE EQUAL OR UNEQUAL INLET AND OUTLET AREAS. TRANSITIONS MAY CONVERT DUCT PROFILES TO ANY COMBINATION FOR RECTANGULAR, ROUND OR FLAT OVAL SHAPES.



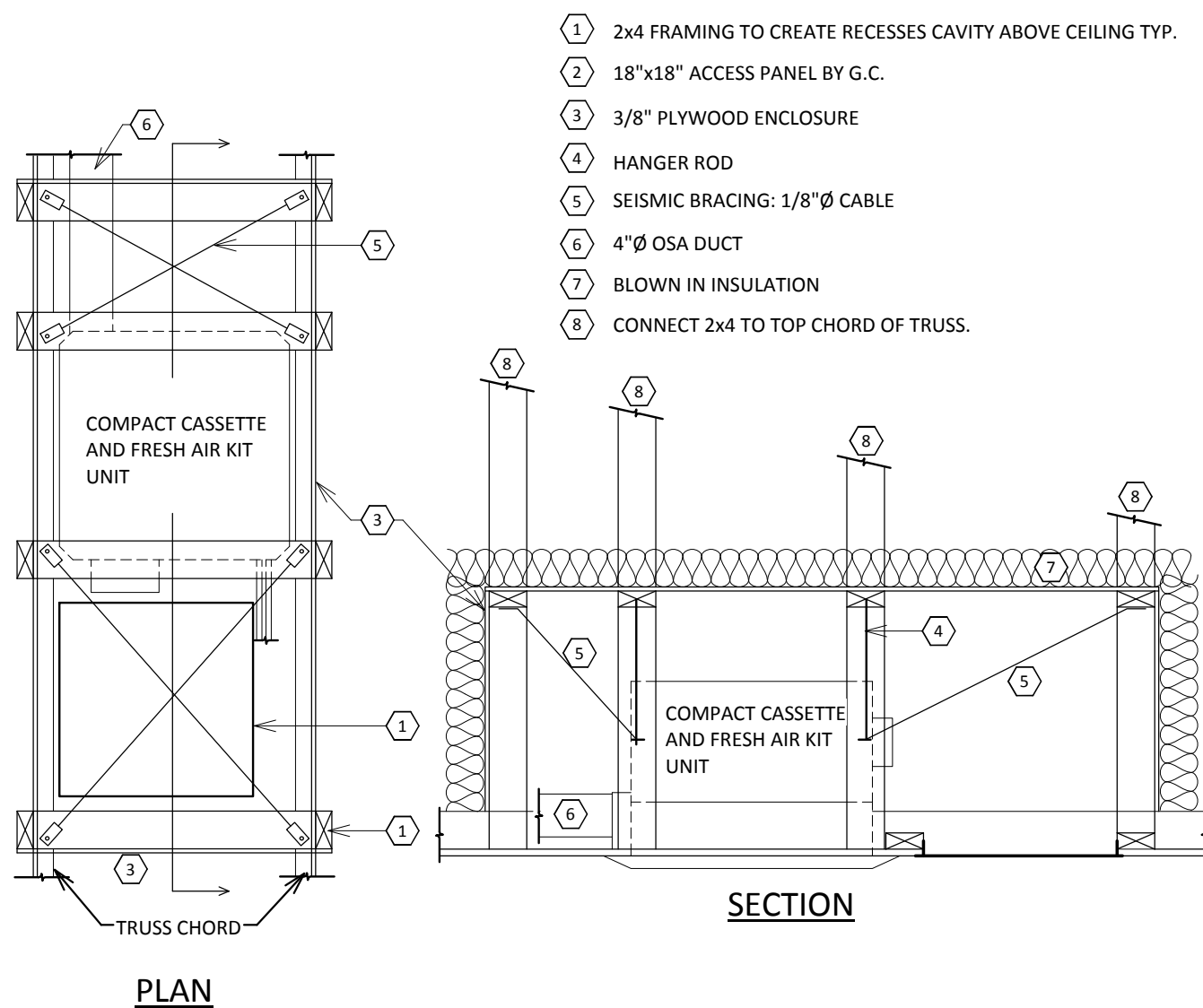
3 DUCT OFFSET AND TRANSITIONS



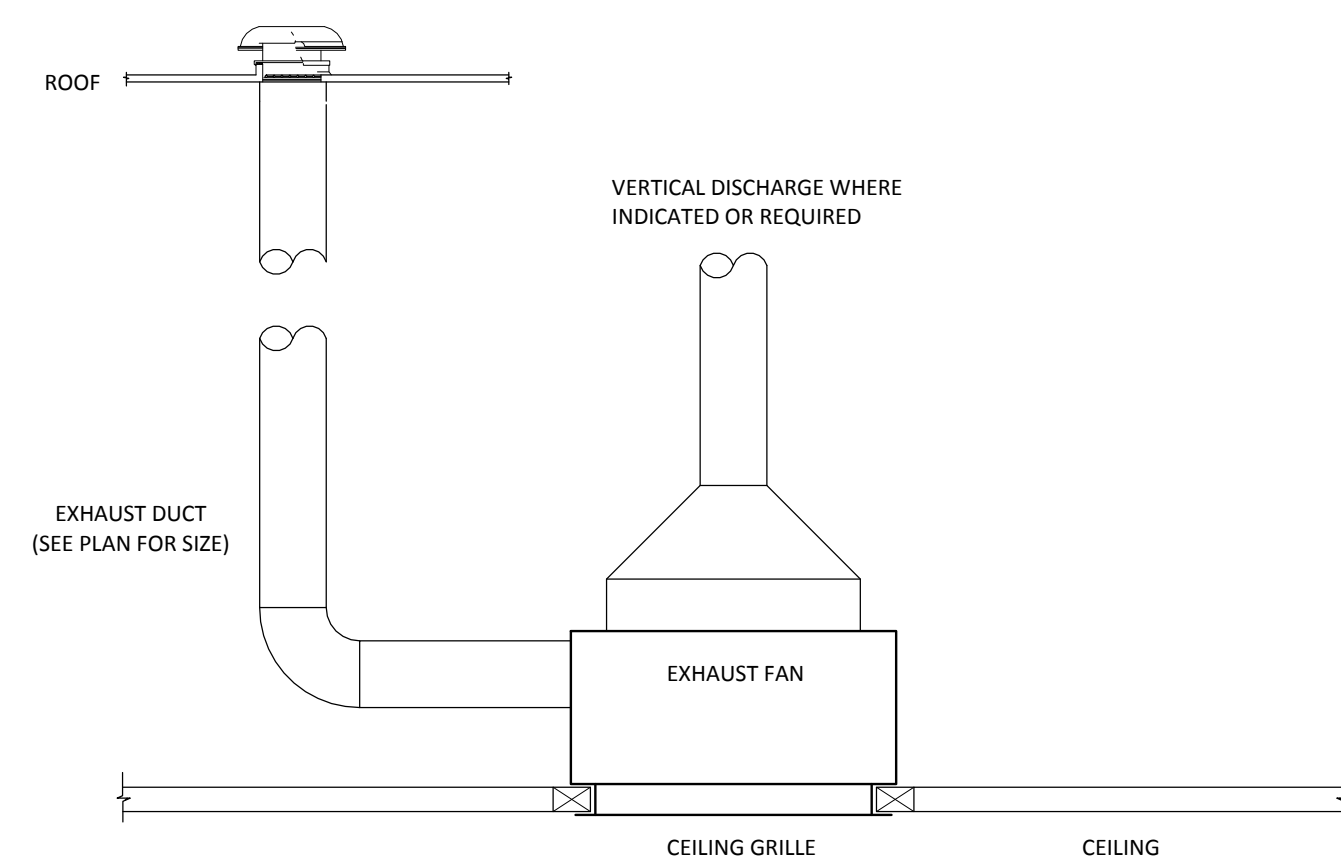
4 90° TEES AND LATERALS



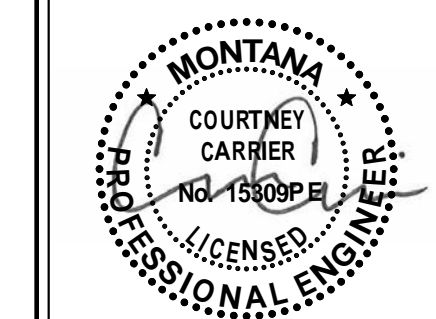
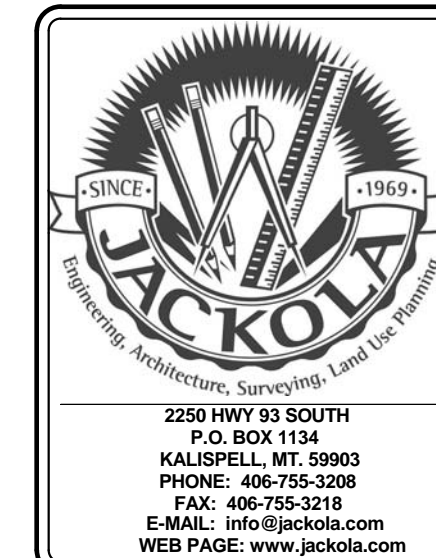
5 CONICAL TEES



6 COMPACT CASSETTE MOUNTING DETAIL



7 CEILING MOUNTED EXHAUST FAN



MONTANA FISH, WILDLIFE AND PARKS
ADMIN BLDG, MAINT. BLDG, HOST PAD
HARRY HORN RD
BIGFORK, MT

SHEET
MECHANICAL
DETAILS

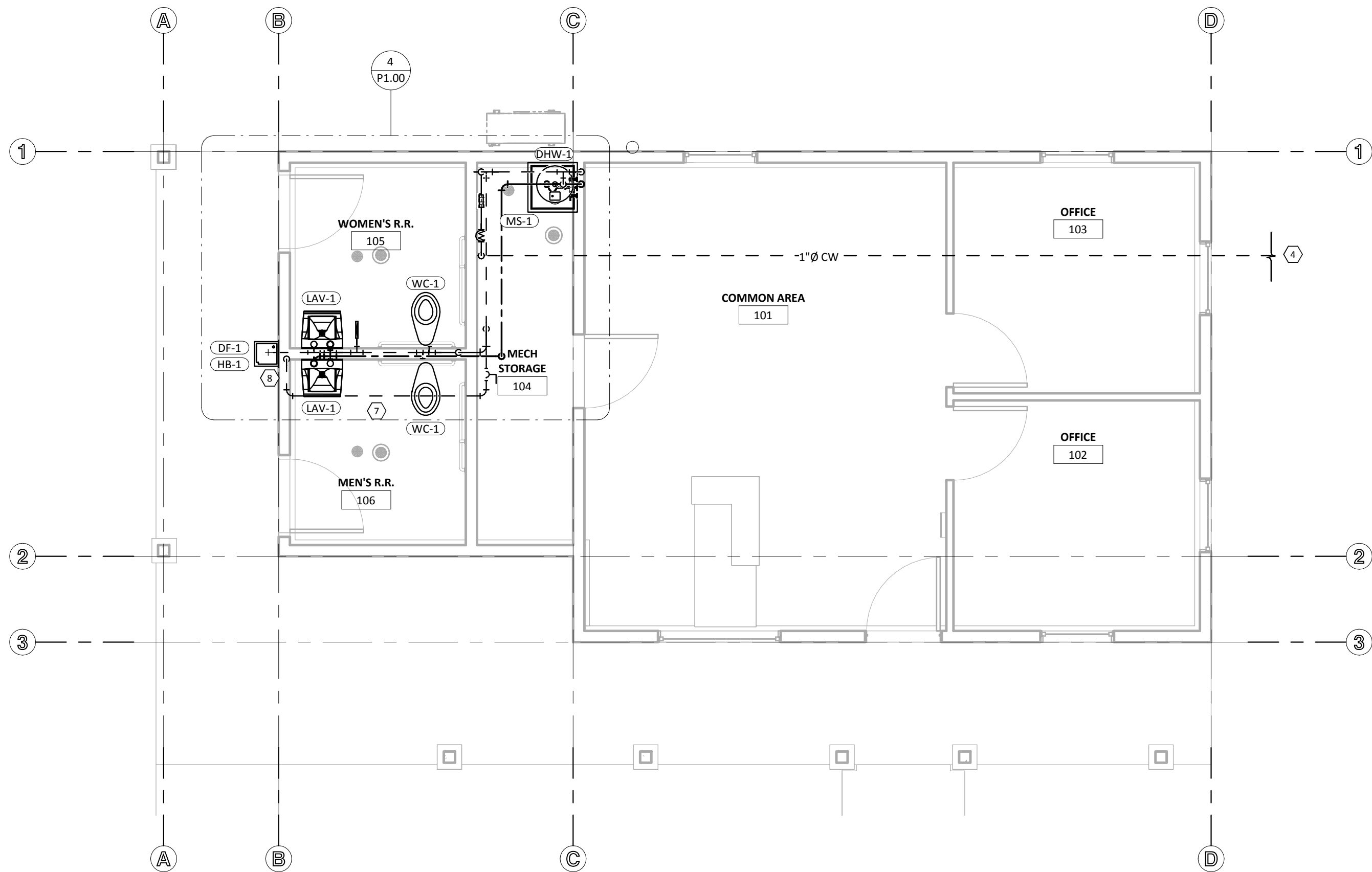
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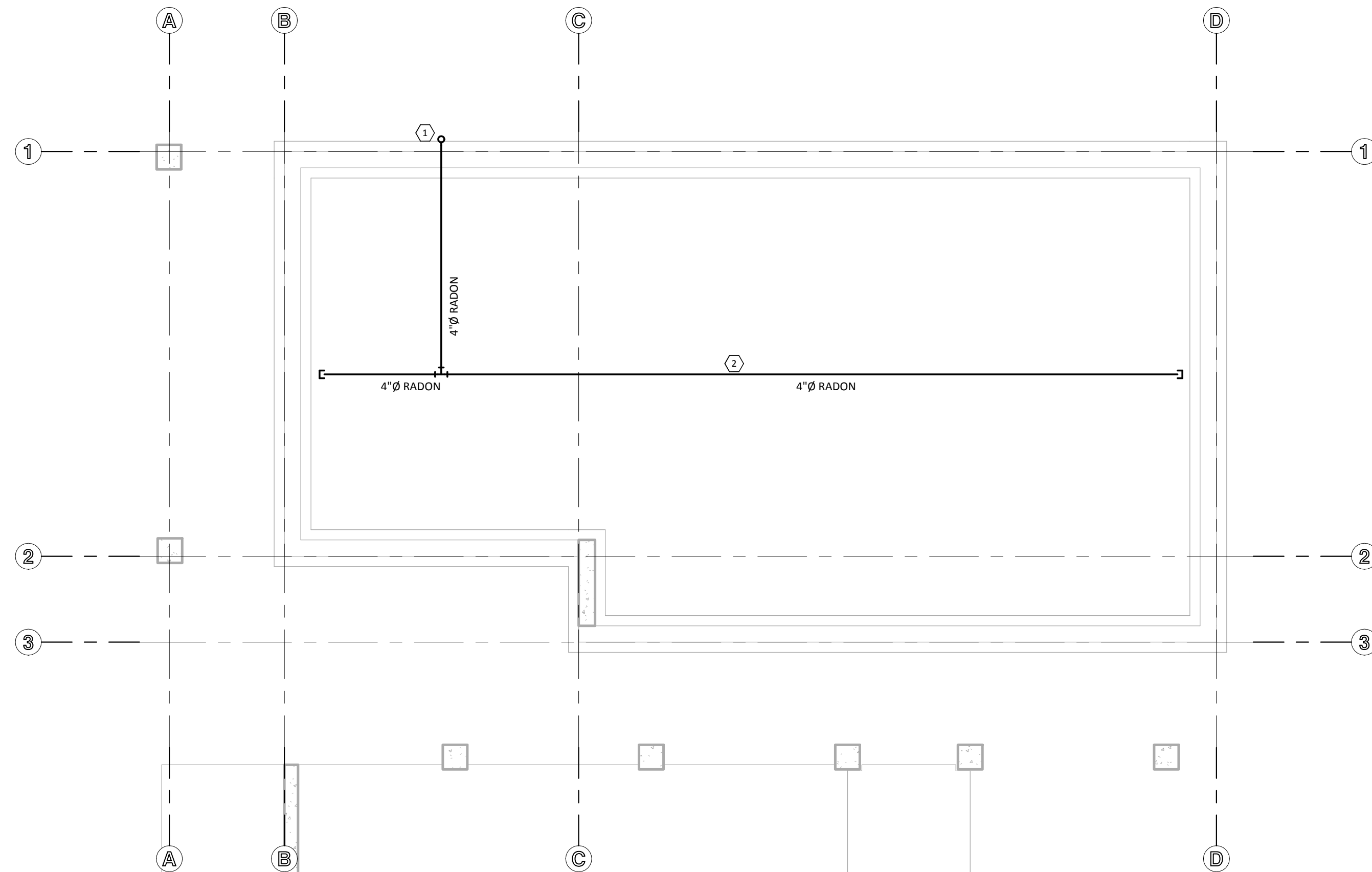
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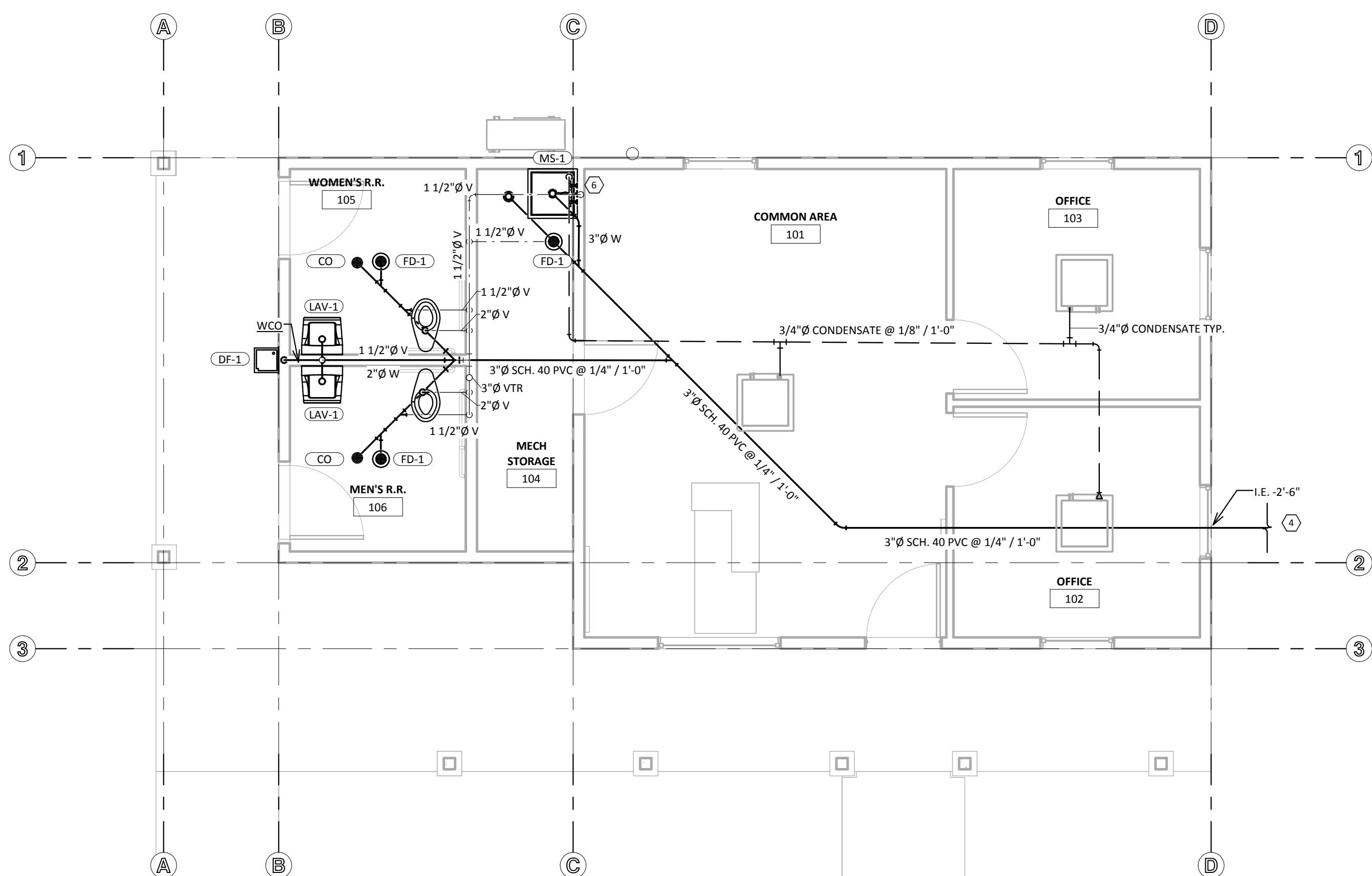
SHEET 25 OF 31



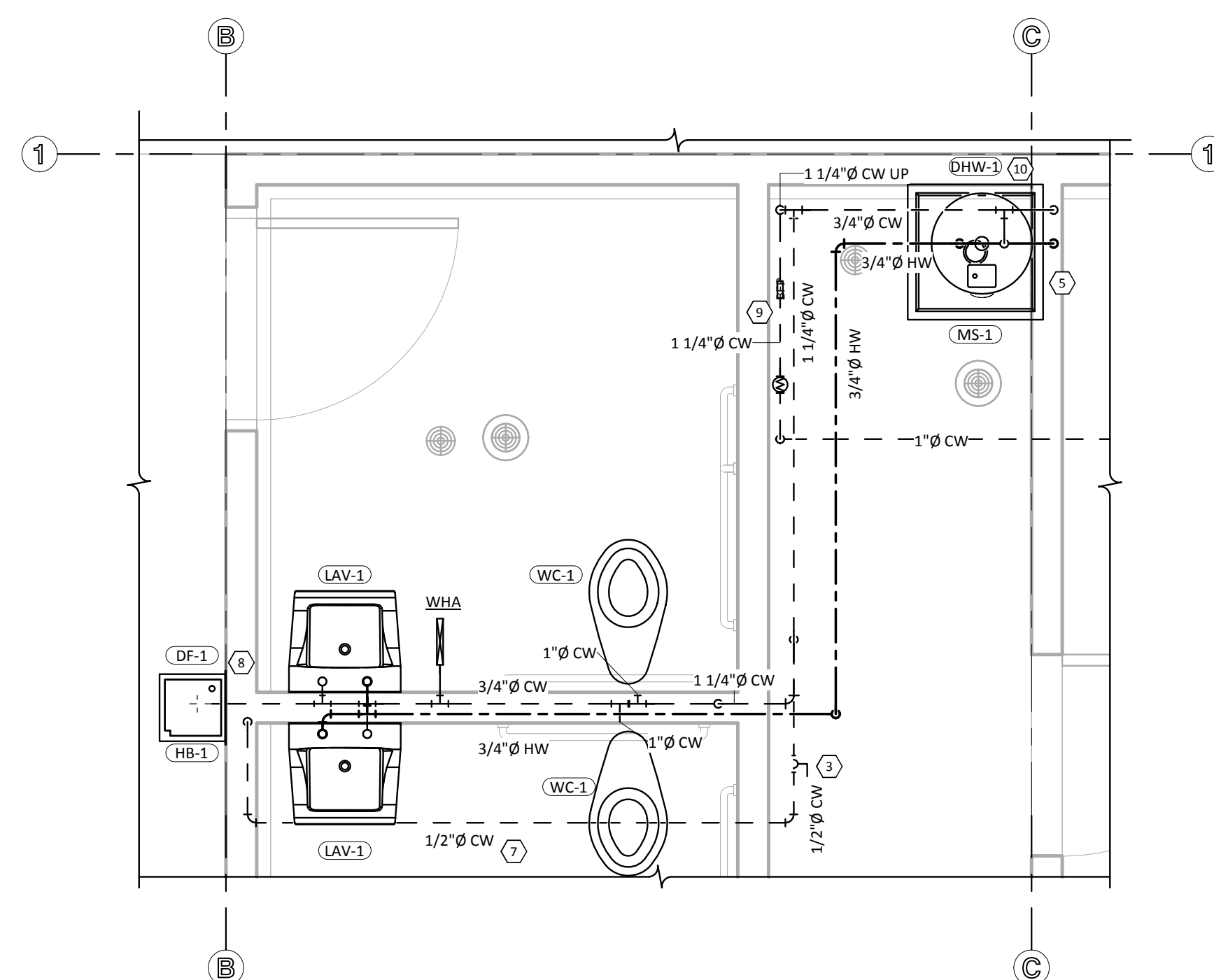
1 ADMIN BLDG. PLUMBING SUPPLY PLAN
1/4" = 1'-0"



3 RADON MITIGATION
1/4" = 1'-0"

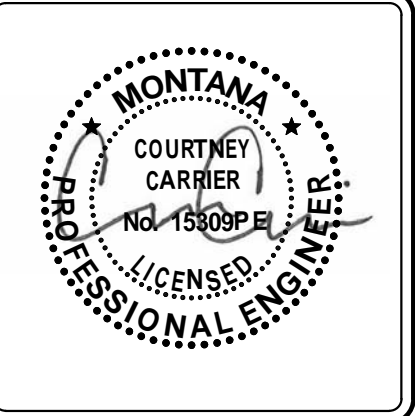
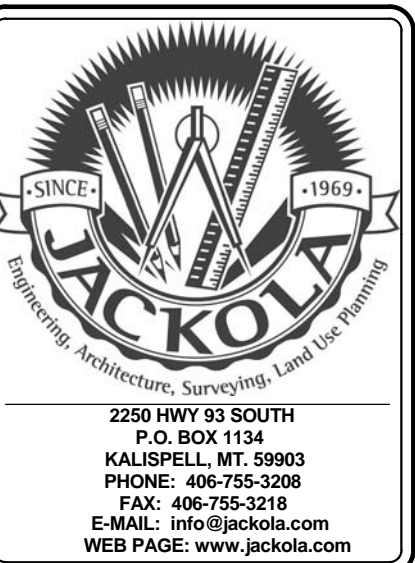


2 ADMIN BLDG. WASTE & VENT PLAN
1/4" = 1'-0"



4 ADMIN BLDG. PLUMBING SUPPLY PLAN - CALLOUT
1/2" = 1'-0"

PLUMBING KEYNOTES	
1	EXTEND 4"Ø SCH. 40, DWV TYPE PVC RADON PIPE THROUGH FOUNDATION AND ELBOW UP ALONG EXTERIOR WALL. SEAL PENETRATION THROUGH FOUNDATION.
2	4"Ø SCH. 40 PERFORATED PVC PIPE. CAP BOTH ENDS.
3	INSTALL STOP AND WASTE VALVE IN LOCATION WHERE ANNUAL WINTERIZATION CAN OCCUR.
4	SEE CIVIL PLANS FOR CONTINUATION OF PIPING.
5	WATER HEATER ABOVE MOP SINK, MOUNT PER 6/P2.0
6	DROP CONDENSATE PIPE DOWN IN CORNER TO DRAIN INTO MS-1.
7	CW PIPE SHALL SLOPE DOWNWARD IN WALL, TOWARDS STOP AND WASTE VALVE TO ALLOW FOR WINTERIZATION.
8	HOSE BIB MOUNTED ON EXTERIOR WALL BELOW DF-1
9	SEE 7/P2.0 FOR WATER RISER DIAGRAM
10	SEE 6/P2.0 FOR WATER HEATER SCHEMATIC.



MONTANA FISH, WILDLIFE AND PARKS
ADMIN BLDG, MAINT. BLDG, HOST PAD
HARRY HORN RD
BIGFORK, MT

SHEET
ADMIN BLDG
PLUMBING
PLAN

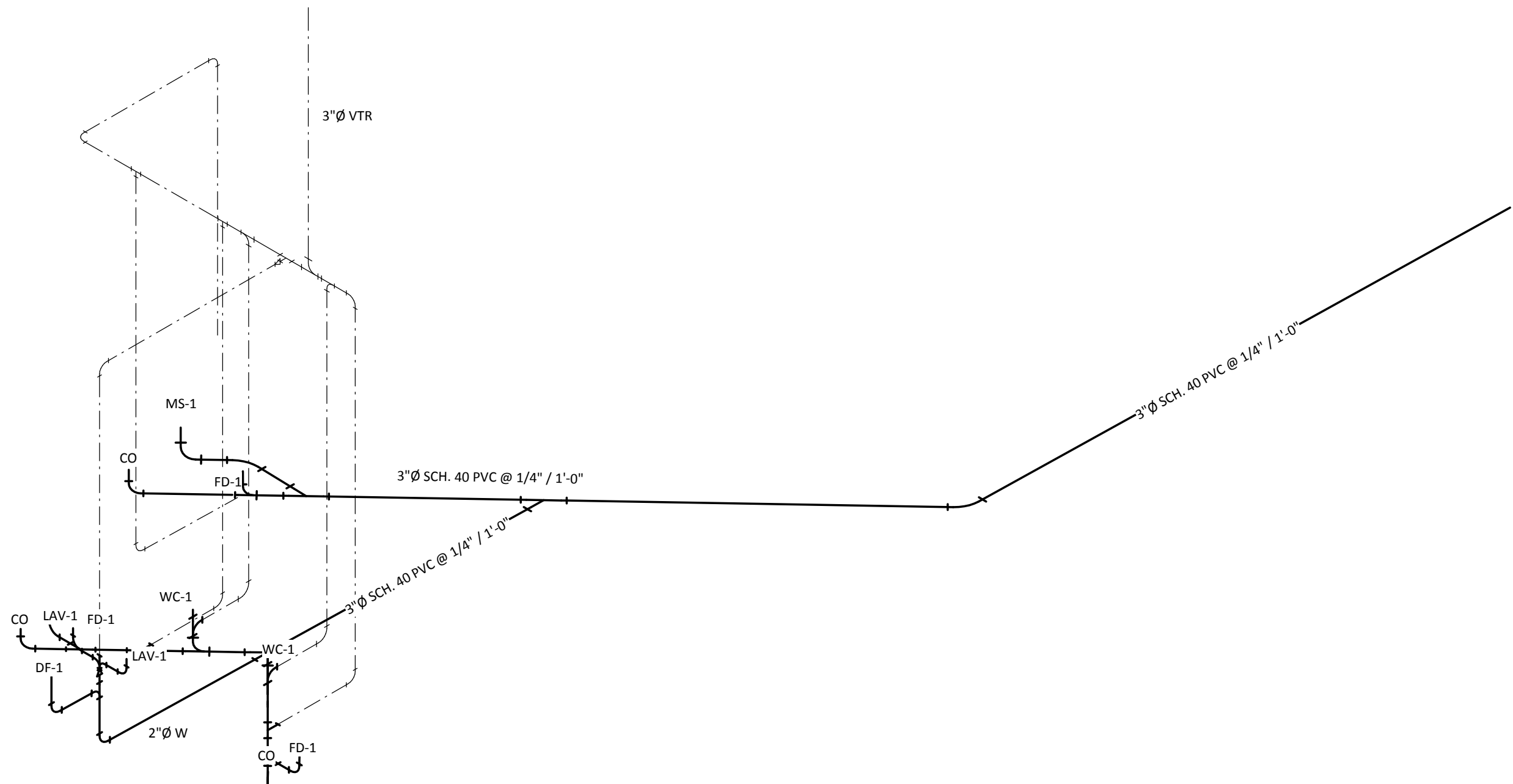
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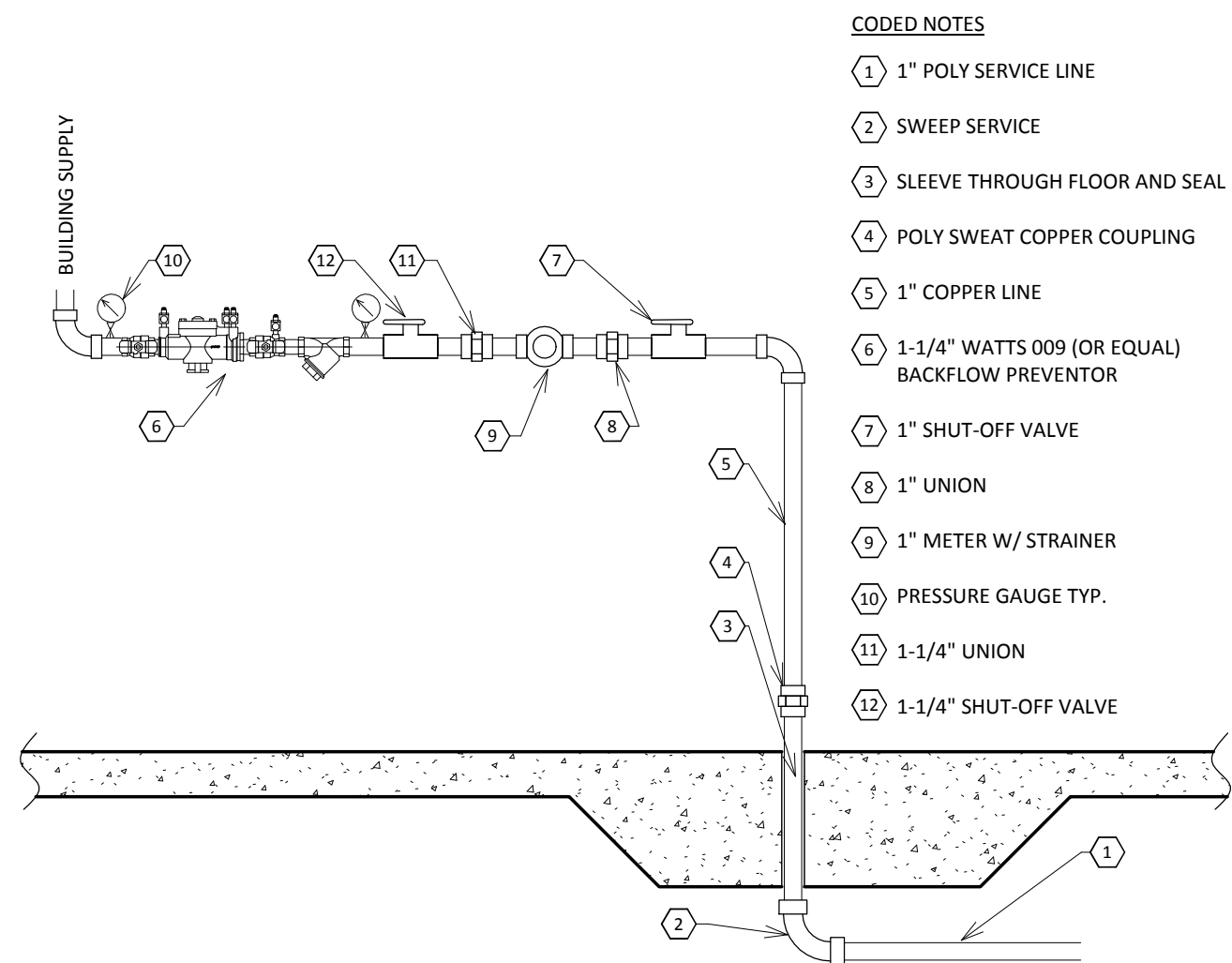
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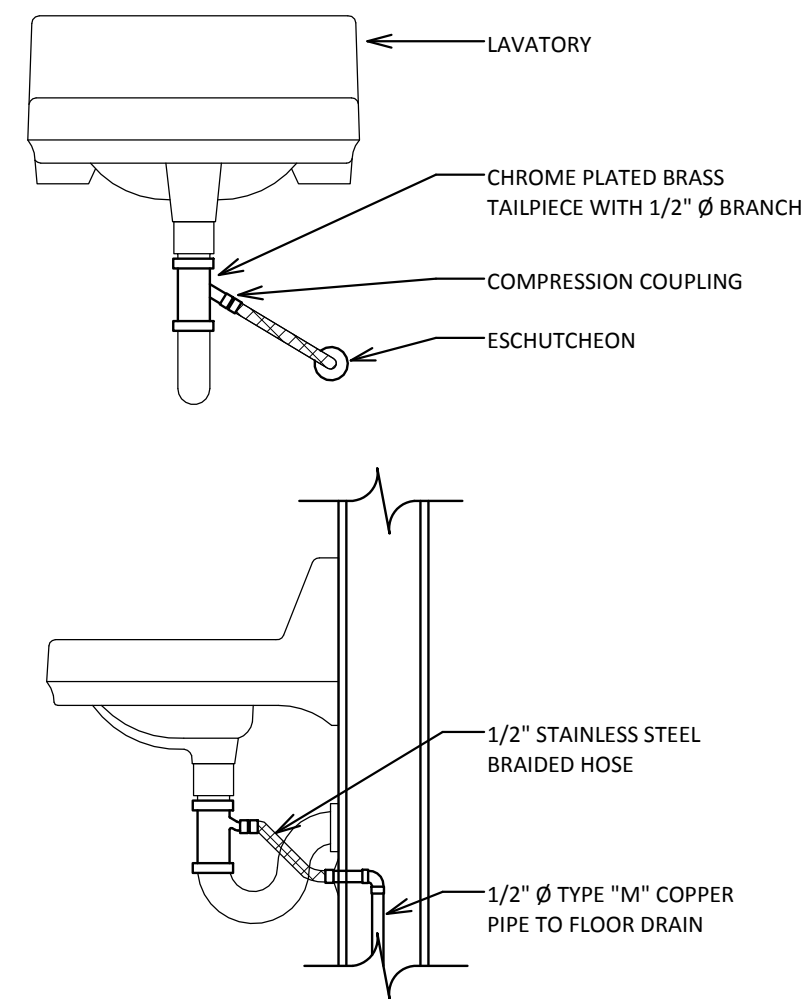
SHEET 27 OF 31



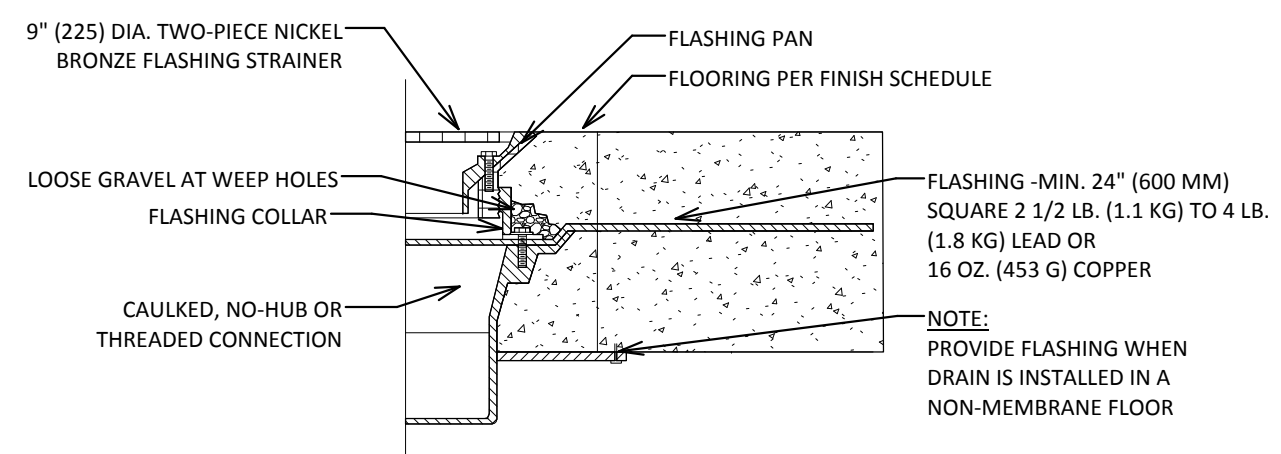
1 WASTE & VENT ISOMETRIC



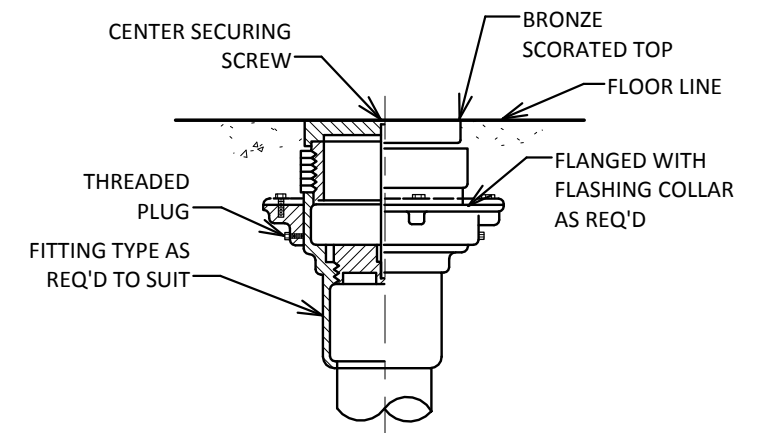
7 WATER RISER DIAGRAM
3/4" = 1'-0"



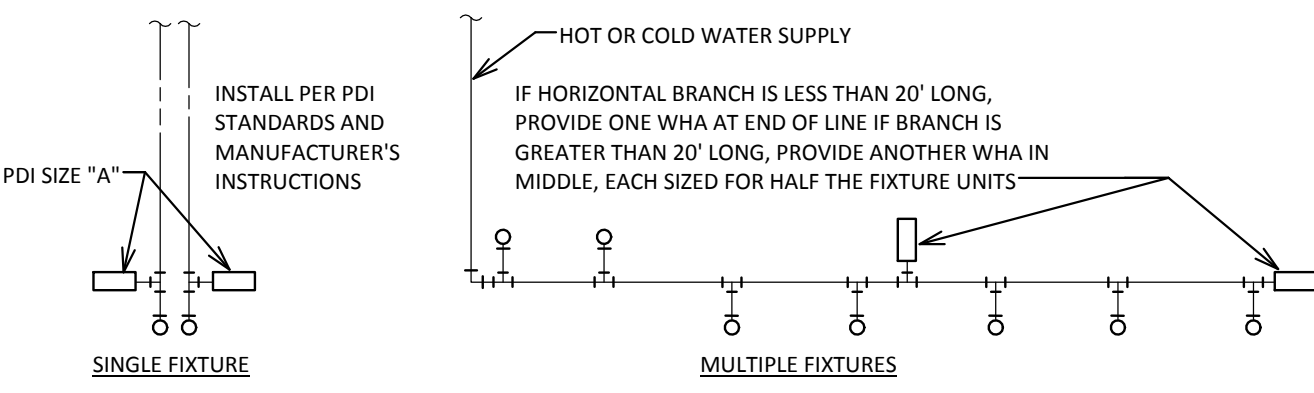
2 TAILPIECE TRAP PRIMER
1" = 1'-0"



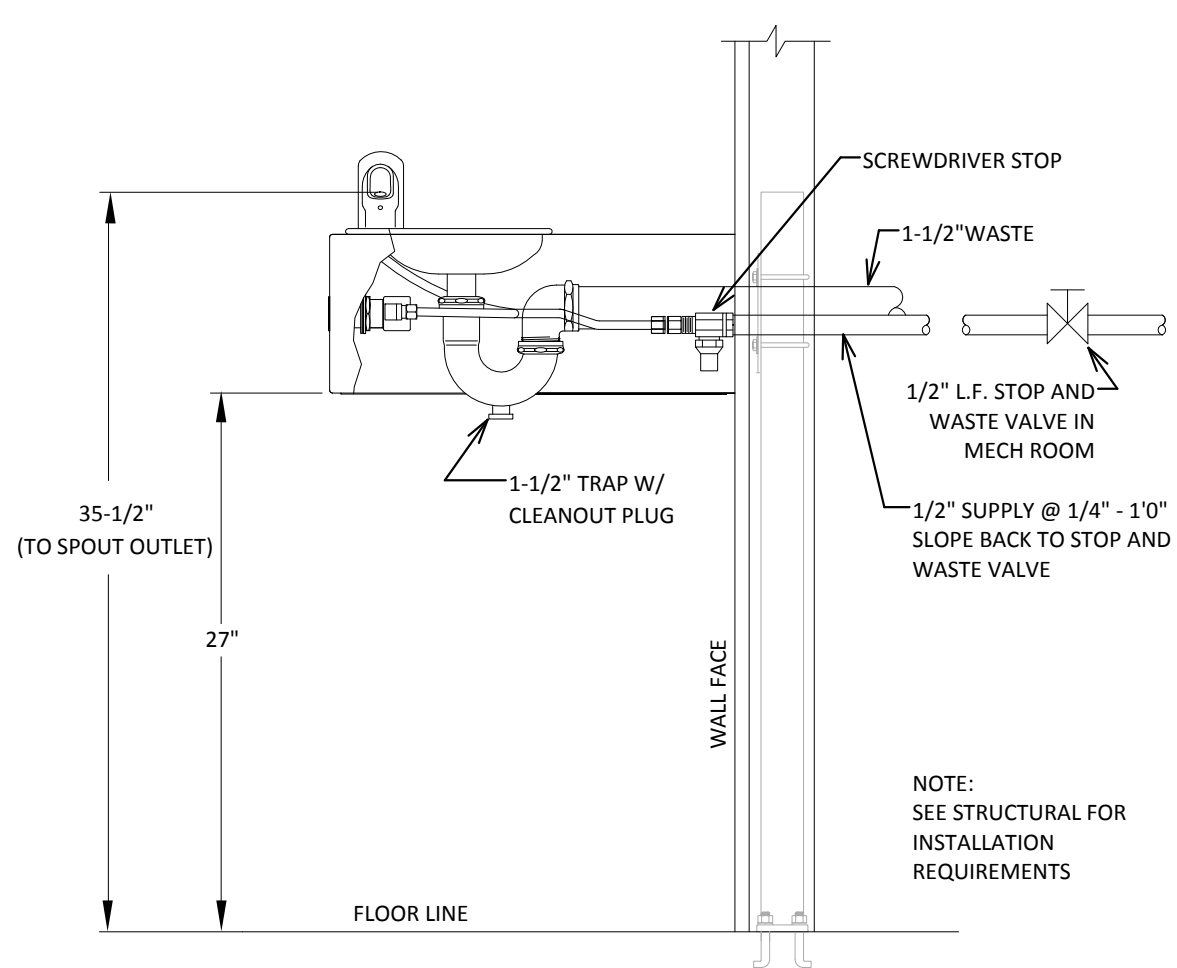
4 FLOOR DRAIN
1" = 1'-0"



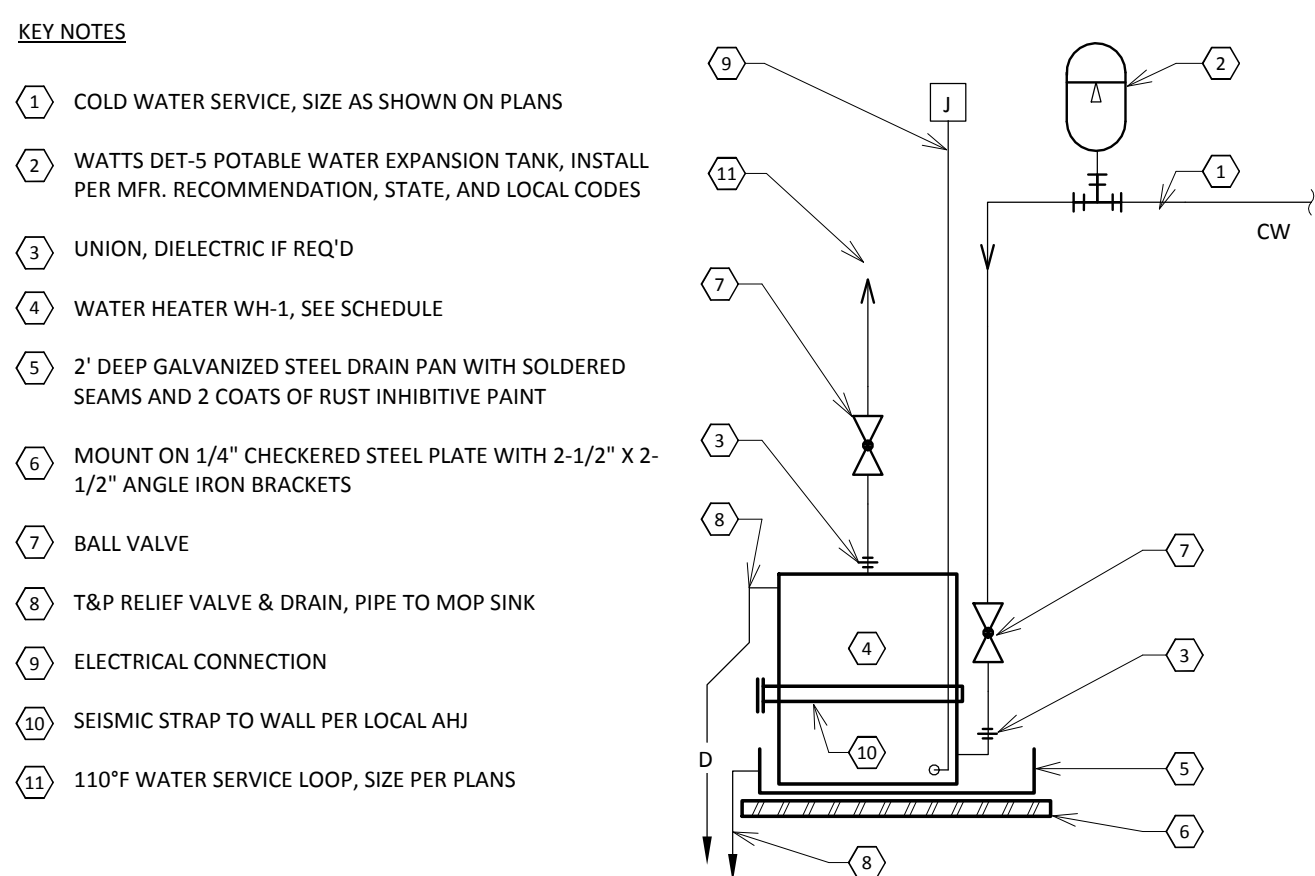
5 FLOOR CLEANOUT
1" = 1'-0"



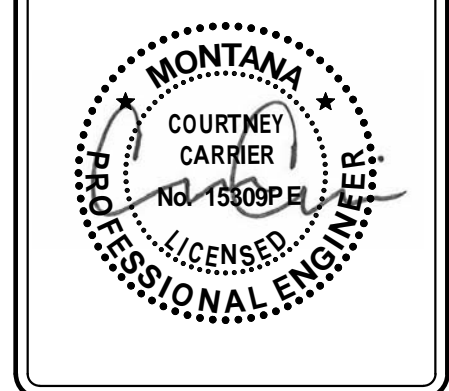
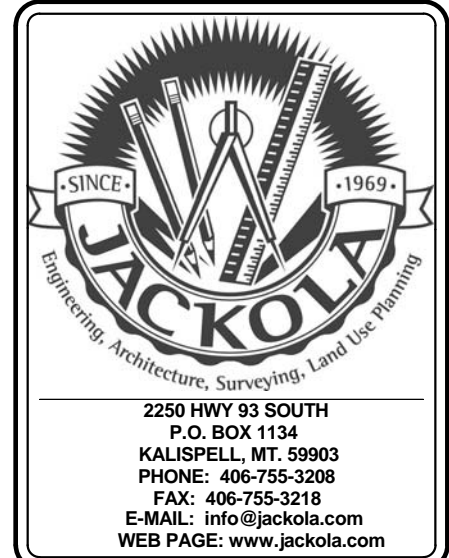
8 WATER HAMMER ARRESTOR
3/16" = 1'-0"



3 DRINKING FOUNTAIN DETAIL
1" = 40'-0"



6 WATER HEATER SCHEMATIC
1" = 1'-0"



MONTANA FISH, WILDLIFE AND PARKS
ADMIN BLDG, MAINT. BLDG, HOST PAD
HARRY HORN RD
BIGFORK, MT

SHEET
PLUMBING
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P2.00
SHEET 28 OF 31

GENERAL ELECTRICAL NOTES.

I. GENERAL ELECTRICAL NOTES: ALL SHEETS:

1. ALL ELECTRICAL EQUIPMENT, FIXTURES, MATERIALS, METHODS, AND WORK MUST BE IN ACCORDANCE AND COMPLIANCE WITH MOST RECENT APPROVED EDITION OF ADAAG, ANSI, IEEE, NEC, NEMA, NFPA, OSHA, TIA, CODES AND STANDARDS. IN ADDITION, ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, STANDARDS, AND ORDINANCES MUST BE FULLY MET.
2. ALL ELECTRICAL WORK IS TO BE PERFORMED, INSTALLED, TESTED, INSPECTED, AND APPROVED BY QUALIFIED AND LEGALLY LICENSED AND BONDED ELECTRICAL CONTRACTORS/PROFESSIONALS AND THEIR DIRECT REPORTS. WORKING ON ENERGIZED PARTS REQUIRES PROPER EQUIPMENT AND SHALL ONLY BE PERFORMED BY OSHA CERTIFIED EMPLOYEES.
3. ALL ELECTRICAL MATERIAL, EQUIPMENT, FIXTURES, AND DEVICES SHALL BE NEW AND ORIGINAL, AND BE LISTED WITH THE UNDERWRITERS LABORATORIES INC., OR EQUAL, AND SHALL MEET THEIR REQUIREMENTS, AND SHALL BEAR THEIR LABEL WHEREVER STANDARDS HAVE BEEN ESTABLISHED AND LABEL SERVICE IS REGULARLY FURNISHED BY THAT AGENCY. ALL ELECTRICAL MATERIAL, EQUIPMENT, FIXTURES, AND DEVICES MUST BE INSTALLED PER THE MANUFACTURERS LISTING AGREEMENT AND IN ACCORDANCE WITH THE INTENDED PURPOSE. ANY SHOP, FIELD OR SITE MODIFICATIONS TO ELECTRICAL MATERIAL, EQUIPMENT, FIXTURES, AND DEVICES, MUST NOT INTERFERE, REMOVE, OR ALTER ITS LISTING, WARRANTY, OR SAFETY AGREEMENTS.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, TEST EQUIPMENT, TRANSPORTATION AND PERFORM ALL OPERATIONS NECESSARY OR INCIDENTAL TO PROPER EXECUTION AND COMPLETION OF ALL "ELECTRICAL WORK" WHETHER SPECIFICALLY MENTIONED OR NOT.
5. GENERAL CONTRACTOR SHALL SECURE AND PAY ALL FEES FOR ALL NECESSARY PERMITS AND UTILITY COMPANY APPLICATIONS.
6. GENERAL CONTRACTOR SHALL PROVIDE ANY TEMPORARY ELECTRICAL POWER AND METER REQUIRED, AND COORDINATE WITH POWER COMPANY/UTILITY TO MEET THEIR REQUIREMENTS FOR SET-UP, UTILIZATION, AND REMOVAL OF TEMPORARY ELECTRICAL POWER AND SHALL COMPLY WITH NEC SEC. 305 AND THE FOLLOWING GENERAL NOTE PER 37.
7. ALL COMPLETED ELECTRICAL JOBS SHALL BE GUARANTEED BY THE ELECTRICAL CONTRACTOR FOR THE PERIOD OF ONE YEAR AFTER THE DATE OF ACCEPTANCE BY OWNER. ANY WORKMANSHIP PERFORMED BY THE EC FOUND TO BE DEFECTIVE OR FAULTY DURING THAT PERIOD OF TIME SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION AT THE SOLE EXPENSE OF THE EC.
8. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. RELATED TO ELECTRICAL WORK SHALL BE TURNED OVER TO THE OWNER AT JOB COMPLETION BY EC. ADDITIONALLY, ALL PRODUCT WARRANTY REGISTRATION CARDS, APPLICATIONS, AND CERTIFICATES SHALL BE COMPLETED AND FILLED OUT AND TURNED OVER TO OWNER. ALL SPARE, SURPLUS, AND RELATED ADJUSTMENT PARTS, TOOLS OR DEVICES ARE TO TURNED OVER TO OWNER.
9. GENERAL CONTRACTOR SHALL PROVIDE THE OWNER WITH ONE COMPLETE SET OF ELECTRICAL "AS BUILTS" DRAWINGS AT THE COMPLETION OF THE JOB. ELECTRICAL DRAWINGS ARE ESSENTIALLY REPRESENTATIVE IN NATURE, AND DIAGRAMMATIC IN STYLE, SO THAT THE EXACT SIZE AND LOCATION OF EQUIPMENT SHOWN MAY NOT BE TO SCALE, ALL DIMENSIONS AND CONDUIT/CONDUCTOR DATA SHALL BE VERIFIED IN THE FIELD. LOCATIONS AND DIMENSIONS SHALL BE PER SHOP DRAWINGS; ENGINEERING DOCUMENTS SHALL PREVAIL IN CASE OF VARIATION IN SPECIFICATIONS. DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF GC AND OWNER BEFORE START OF WORK. FURNITURE INDICATED ON PLANS IS FOR REFERENCE ONLY.
11. ELECTRICAL CONTRACTOR SHALL COORDINATE ALL ELECTRICAL MATERIAL, EQUIPMENT, FIXTURES, AND DEVICE LOCATIONS WITH ALL RELATED ARCHITECTURAL, MECHANICAL, AND STRUCTURAL DRAWINGS TO AVOID AND PREVENT IMPROPER INSTALLATIONS OR WASTEFUL PRACTICES.
12. TYPICAL END USER (CORD CONNECTED) ELECTRICAL EQUIPMENT, SUCH AS BUT NOT LIMITED TO, TELEPHONES, COMPUTER, OFFICE EQUIPMENT, TOOLING, OTHER CORD CONNECTED EQUIPMENT, ETC. SHALL BE PROVIDED BY OTHERS. GENERAL CONTRACTOR SHALL PROVIDE FOR COORDINATION WITH OUTSIDE VENDORS/INSTALLERS REGARDING DELIVERIES, COMMISSIONING, AND TRAINING AS DIRECTED BY OWNER.
13. COMPATIBILITY: ALL ELECTRICAL DEVICES, EQUIPMENT, WIRING, ETC. SHALL BE COMPATIBLE, EACH WITH ONE ANOTHER AND WITH EXISTING WORK AND WITH EXISTING BUILDING STANDARDS.
14. WHEN PART OF ELECTRICAL WORK, EC TO PROVIDE FULL AND COMPLETE SHOP DRAWINGS FOR DATA CABLE, FIRE ALARM SYSTEM, SECURITY ALARM SYSTEM AND LOCATIONS TO ENGINEER FOR FINAL APPROVAL. INCLUDE DIRECTORY AND VERIFY FUNCTIONAL SIGNAL LINK TO AND FROM EXISTING SYSTEM IF ANY.
15. SHOP DRAWINGS AND SUBMITTALS SHALL BE PRODUCED WITH APPLICABLE ELECTRICAL DRAWING SHEET PER DESIGN SPECIFICATION AND ALL APPLICABLE CODES AND STANDARDS AND APPROVED CHANGES OR ADDENDUMS.
16. WHERE 3RD PARTY CONTRACTOR/VENDOR PROVIDES ANY EQUIPMENT OR DEVICE THAT REQUIRES ELECTRICAL ROUGH-IN OR TERMINATION, THAT 3RD PARTY SHALL BE RESPONSIBLE FOR THE COMPLETE COORDINATION OF THESE ISSUES AND PAYMENT FOR THESE REQUIREMENTS.

II. & III. ELECTRICAL PANEL/WIRING NOTES 21 TO 40 - E4.1:

IV. ELECTRICAL SITE PLAN & NOTES (SEE C1.0):

41. GENERAL CONTRACTOR SHALL PROVIDE ALL TRENCHING, COMPACTION, BACKFILL, WARNING TAPE, CONDUITS AND PULL LINES AS REQUIRED FOR EACH NEW ELECTRICAL SERVICE AND ANY AT EXTERIOR UTILIZATION EQUIPMENT LOCATIONS.
42. EC/GENERAL CONTRACTOR SHALL INSTALL PRIMARY POWER SERVICE CONDUITS DESIGNATED AT A LOCATION DETERMINED BY THE POWER COMPANY AND WITHIN PLAT EASEMENTS. INSTALL CONDUITS W/PULL LINES PER POWER COMPANY STANDARDS.
43. EC/GENERAL CONTRACTOR SHALL INSTALL CONCRETE TRANSFORMER PAD/VAULT(S), PROTECTIVE BOLLARDS, AND PRIMARY/SECONDARY CONDUIT TO INCOMING SERVICE SECTION OF THE MAIN DISTRIBUTION PANEL(S) DESIGNATED AT A LOCATION DETERMINED BY THE RELATED ARCHITECTURAL SITE, AND STRUCTURAL DRAWINGS ELSEWHERE IN THIS PRINT PACK. INSTALL CONCRETE TRANSFORMER PAD/VAULT(S) PER POWER COMPANY STANDARDS AND SET BACKS. REFER TO THE RISER DIAGRAM FOR FURTHER INFORMATION.
44. EC/GENERAL CONTRACTOR SHALL PROVIDE ONE 2" TELEPHONE UTILITY SERVICE CONDUIT IN FROM PROPERTY LINE TO NEW SERVICE BOARD LOCATED ELSEWHERE IN THIS PRINT PACK. PROVIDE A 3/4" PLYWOOD BACKER, ONE DEDICATED DUPLEX RECEPTACLE, AND ONE 6 GAGE CU GROUND WIRE ROUTED TO GROUND ROD. COORDINATE COMPLETE INSTALLATION WITH UTILITY AND CONFORM TO ALL TELEPHONE UTILITY STANDARDS.
45. WHERE CATV PRESENT, EC/GENERAL CONTRACTOR SHALL PROVIDE ONE 2" CABLE TELEVISION SERVICE CONDUIT IN FROM PROPERTY LINE TO NEW SERVICE BOARD LOCATED ELSEWHERE IN THIS PRINT PACK. PROVIDE A 3/4" PLYWOOD BACKER, ONE DEDICATED DUPLEX RECEPTACLE, AND ONE 10 GAGE CU GROUND WIRE ROUTED TO GROUND ROD. COORDINATE COMPLETE INSTALLATION WITH UTILITY AND CONFORM TO ALL CABLE TELEVISION UTILITY STANDARDS.
46. COPPER WELD GROUND RODS SHALL BE 5/8" DIA X8' LONG, SEPARATED BY 6'. RESISTANCE TO GROUND MUST BE 25 OHMS OR LESS (5 OHMS OR LESS RECOMMENDED). CONNECT GROUNDING WIRE DIRECTLY TO GROUND ROD. MINIMIZE CONDUCTOR RIGHT ANGLE BENDS. MAXIMUM LENGTH OF CONDUCTOR SHALL BE 10'. GROUNDING ELECTRODE/JUMPER CONNECTIONS SHALL BE MADE WITH A BOLTED PRESSURE OR COMPRESSION TYPE CONNECTOR SUITABLE FOR DIRECT BURIAL OR EXOTHERMIC WELD. MINIMUM WIRE SIZE PER NEC TABLE 250-66. REFER TO GROUNDING DIAGRAM ELSEWHERE IN THIS PRINT PACK.

V. ELECTRICAL COMMUNICATION NOTES (SEE DATA/PHONE MDF DETAIL DRAWING E4.0):

51. COMMUNICATION CIRCUITS SHALL CONFORM TO NEC 800 AND TIA-568A, 569, 607 AND FCC TITLE 47 CFR 68.
52. COMMUNICATION EQUIPMENT SHALL BE UL LISTED TO SECTIONS 444, 497, 1459, AND 1863.
53. PERFORMANCE OF NETWORKS SHALL CONFORM TO ANS/IEEE STD. 802.3 (5 FOR TOKEN RING APPS.).

VI. ELECTRICAL SUBMITTAL NOTES (WHERE APPLICABLE/PER CONTRACT):

- A. INCLUDE SHOP DRAWING, EQUIPMENT/PART INFORMATION, APPLICATION NOTES, WARRANTY INFORMATION
- 1) SWITCHGEAR, PANELBOARDS, DISCONNECTS, OVERCURRENT DEVICES WITH SCHEDULE, AND TVSS
- 2) LIGHTS BY TYPE AND FINISH, INSTALLATION, TRIM, AIMING, BALLAST, BULB, AND CONTROL VOLTAGE
- 3) ALARM SYSTEMS (FIRE, SECURITY, CCTV)
- 4) LIGHT CONTROL SYSTEM BY CONTRACTOR SIZE, CONTROL AND OVERRIDE
- 5) RELATED/REQUIRED DIVISION 15, MECHANICAL, SYSTEM- DISCONNECTS AND STARTERS.
- 6) RELATED/REQUIRED DIVISION 2, SITE UTILITY EQUIPMENT AND CONTROL, SEPTIC, AND WATER WELL, SYSTEM
- 7) ELECTRICAL GROUNDING SYSTEM
- 8) INCLUDE ANY INTENDED CHANGES BEING SUBMITTED FOR APPROVAL TO SPECIFIED BUILDING STANDARD ELECTRICAL DEVICES, MATERIALS, OR UTILIZATION EQUIPMENT.
- ** NOTE: ALL ELECTRICAL SUBMITTALS SHALL BE PROVIDED TO ENGINEERING FOR APPROVAL. AFTER G.C. APPROVES SUBSTITUTION REQUIRES 10 DAY ADVANCE NOTICE.

VII. ELECTRICAL TEST(S) NOTES:

- A. CLOSEOUT SUBMITTALS: PROCEDURES FOR CLOSEOUT SUBMITTALS.
1. PROJECT RECORD DOCUMENTS: ACCURATELY RECORD THE FOLLOWING:
 - A. LOCATIONS OF ELECTRICAL COMPONENTS AND GROUNDING ELECTRODES.
 - B. COMPLIANCE WITH I. GENERAL ELECTRICAL NOTES 5.6,7,8, & 9 (ABOVE).
- B. TESTING AND INSPECTION
 1. INSPECT AND TEST IN ACCORDANCE WITH NETA ATS, EXCEPT SECTION 4.
 2. PERFORM INSPECTIONS AND TESTS LISTED IN NETA ATS, SECTION 7.13.
 3. FIELD QUALITY CONTROL - ELECTRICAL TESTING AND INSPECTION
- C. REGULATORY REQUIREMENTS:
 1. SAFETY PRACTICES: INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING REQUIREMENTS:
 - A. OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 - OSHA.
 - B. ACCIDENT PREVENTION MANUAL FOR INDUSTRIAL OPERATIONS, SEVENTH EDITION, NATIONAL SAFETY COUNCIL, CHAP. 4.
 - C. APPLICABLE STATE AND LOCAL SAFETY OPERATING PROCEDURES.
 - D. NETA SAFETY/ACCIDENT PREVENTION PROGRAM.
 - E. NOT USED.
 2. NFPA 70E - ELECTRICAL SAFETY REQUIREMENTS FOR EMPLOYEE WORKPLACE.
 3. G. AMERICAN NATIONAL STANDARDS FOR PERSONNEL PROTECTION, ANSI Z244.1.
2. PERFORM TESTS WITH APPARATUS DE-ENERGIZED EXCEPT WHERE OTHERWISE SPECIFICALLY REQUIRED HEREIN.
- D. TESTS AND INSPECTIONS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
 1. PROPER OPERATION OF LIGHTS, SWITCHES, RECEPTACLES, AND SPECIFIED EQUIPMENT.
 2. CONTINUITY OF RACEWAY SYSTEM.
 3. INSULATION LEAKAGE AND IMPEDANCES
 4. GROUND SYSTEM RESISTANCE.
 5. ELIMINATION OF REVERSE ROTATION AND SINGLE-PHASING OF MOTORS.
 6. SUB-SYSTEM TESTS INDICATED IN OTHER DIVISIONS (HVAC, SEPTIC, LIFE SAFETY) SYSTEMS AS SPECIFIED.
 7. PROPER OPERATION OF FIRE DETECTION SYSTEMS SPECIFIED IN DIVISION 16.

VIII. GENERAL SYMBOL NOTES (REF E4.0):

1. ALL SWITCHES AND RECEPTACLES ARE AS SPECIFIED OR APPROVED "COMMERCIAL" GRADE EQUAL.
2. SWITCHES AND INSTALLATION OF SAME, SHALL FULLY COMPLY WITH NEC ARTICLE 230.
3. ALARM, COMPUTER, HVAC, LIGHTS, AND UTILITY RECEPTACLES EACH REQUIRE SEPARATE WIRING HOME RUN U.O.N.
4. NOT USED.
5. DO NOT MIX NEUTRALS BETWEEN PHASES FOR SINGLE PHASE CIRCUITS U.O.N.
6. ALL TOGGLE SWITCHES ARE TO BE FLUSH MOUNTED AT 42" A.F.F., U.O.N., TO BOTTOM AND BE PROVIDED WITH A THERMOPLASTIC COVER PLATE TO MATCH DEVICE UNLESS OTHERWISE SPECIFIED. COLOR OF DEVICE TO BE IVORY/IVORY EXCEPT KITCHEN, BATHROOMS, & MECHANICAL ROOM ARE STAINLESS STEEL.
7. RECEPTACLES AND INSTALLATION OF SAME, SHALL FULLY COMPLY WITH NEC ARTICLE 210.
8. ALL RECEPTACLES, COAX, DATA, TELEPHONE, ETC. ARE TO BE FLUSH MOUNTED AT 12" A.F.F., U.O.N., TO BOTTOM AND BE PROVIDED WITH A THERMOPLASTIC COVER PLATE TO MATCH THE DEVICE UNLESS OTHERWISE SPECIFIED. COLOR OF DEVICE TO BE IVORY/IVORY EXCEPT KITCHEN, BATHROOMS, & MECHANICAL ROOM ARE STAINLESS STEEL.
9. ALL BACK-TO-BACK DEVICES TO BE OFFSET HORIZONTALLY 6" MINIMUM.
10. EC TO PROVIDE, PER CONTRACT, ROUGH-IN TO CEILING FREE SPACE OR COMMUNICATION NETWORK LOCATION AND INSTALL 1/2" CONDUIT, MUD RING, AND JUNCTION BOX FOR COMBINATION DATA/TELEPHONE OUTLETS, FIRE & ALARM OUTLETS. METAL RACEWAY AND BOXES FOR FIRE ALARM CIRCUITS.
11. PHONE/DATA/CATV FACE PLATE, WIRING TERMINATIONS, AND TESTING BY OTHERS.
12. ALL SWITCHES AND RECEPTACLES SHALL BE UL LISTED AND OF AN APPROVED NEMA CONFIGURATION.
13. AUDIO SYSTEM & SECURITY TYPICAL ROUGH-IN WIRES AND AUDIO EQUIPMENT BY OTHERS. (CONDUIT STUB BY EC).
- * EACH DEVICE OR OTHERS PER "LEVITON" (1-800-323-8920) CATALOG D-5023 OR EQUAL.

ELECTRICAL LEGEND

LIGHTING

- FLUORESCENT STRIP
- SURFACE-MOUNT FLUORESCENT LIGHT
- RECESSED FLUORESCENT LIGHT
- RECESSED CAN LIGHT
- RECESSED EMERGENCY CAN LIGHT
- PENDANT LIGHT
- WALL MOUNTED SCONCE
- BOLLARD LIGHT
- POLE-MOUNTED LIGHT, SINGLE HEAD
- POLE-MOUNTED LIGHT, DOUBLE HEAD
- WALLPACK
- EXIT LIGHT W/ DIRECTIONAL ARROW
- WALL-MOUNT EMERGENCY FLOODLIGHT
- EXHAUST FAN
- EXHAUST FAN WITH LIGHT FIXTURE
- PHOTOCELL

OUTLETS

- WALL MOUNTED DUPLEX OUTLET
- WALL MOUNTED TRIPLEX OUTLET
- WALL MOUNTED QUAD OUTLET
- WALL MOUNTED DUPLEX OUTLET WITH ISOLATED GROUND
- WALL MOUNTED SINGLE OUTLET WITH SEPARATE CIRCUIT
- WALL MOUNTED DUPLEX OUTLET WITH SEPARATE CIRCUIT
- WALL MOUNTED GFI DUPLEX OUTLET
- WEATHER PROOF PROVIDE WEATHER PROOF POWER OUTLETS TO OUTSIDE OF BUILDING FLOOR MOUNTED DUPLEX OUTLET
- WALL MOUNTED DUPLEX OUTLET WITH GROUND FAULT INTERRUPTER
- SINGLE SPECIAL PURPOSE REC OUTLET
- DOUBLE SPECIAL PURPOSE REC OUTLET

SWITCHES

- SWITCH IN CRAWL SPACE
- DOUBLE POLE SWITCH
- SINGLE POLE SWITCH
- 3-WAY SWITCH
- 4-WAY SWITCH
- PULL STATION
- TWO CIRCUIT SWITCH
- THREE CIRCUIT SWITCH
- KEY OPERATED SWITCH
- SWITCH WITH TIMER
- MOTION CONTROLLED SWITCH
- DIMMER SWITCH
- DEHUMIDITY SWITCH
- DIGITAL LIGHTING SWITCH
- SWITCH WITH FUSE
- SMALL MOTOR DISCONNECT SWITCH

SECURITY/INTERCOM

- DOOR BELL, LOCATE BELL @ 7'-0" AFF
- PUSH BUTTON FOR ELECTRIC DOOR STRIKE RELEASE
- RECESSED DOOR CONTACT
- KEYPAD
- EMERGENCY PANEL
- SPEAKER, 7.5 WATT
- PUSH BUTTON STATION
- PUSH BUTTON STATION W/ SPEAKER
- VOLUME CONTROL
- MICROPHONE
- ELECTRIC LATCH
- DOOR POSITION INDICATOR SWITCH
- OCCUPANCY SENSOR
- WALL OUTLET FOR CCTV CAMERA
- CABLE TELEVISION PORT
- POWER PACK

CIRCUITING

- JUNCTION BOX
- ELECTRICAL DISTRIBUTION PANEL
- HOMERUN TO PANEL A, ARROWHEADS INDICATE # OF CIRCUITS. HASH MARKS INDICATE # OF CONDUCTORS
- = NEUTRAL; != HOT; != ISOLATED KND;
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN
- UNDERGROUND CONDUIT
- CONDUIT HIDDEN IN WALLS/CEILING
- PANEL BOARD
- CIRCUIT BREAKER
- UTILITY METER
- UTILITY POLE
- GENERATOR
- AUTOMATIC TRANSFER SWITCH
- TRANSFORMER
- GROUND ROD
- GROUND
- TIME CLOCK
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- RELAY SWITCH

PUMPS/MOTORS

- PUMP
- MOTOR
- VARIABLE SPEED PUMP
- PUMP CONTROL PANEL
- EQUIPMENT DISCONNECT
- MAGNETIC MOTOR STARTER
- MAGNETIC MOTOR STARTER WITH DISCONNECT
- 20A, 3 POLE, DUEL ELEMENT FUSE WITH DISCONNECT
- FUSE
- FUSE WITH DISCONNECT
- THERMOSTAT

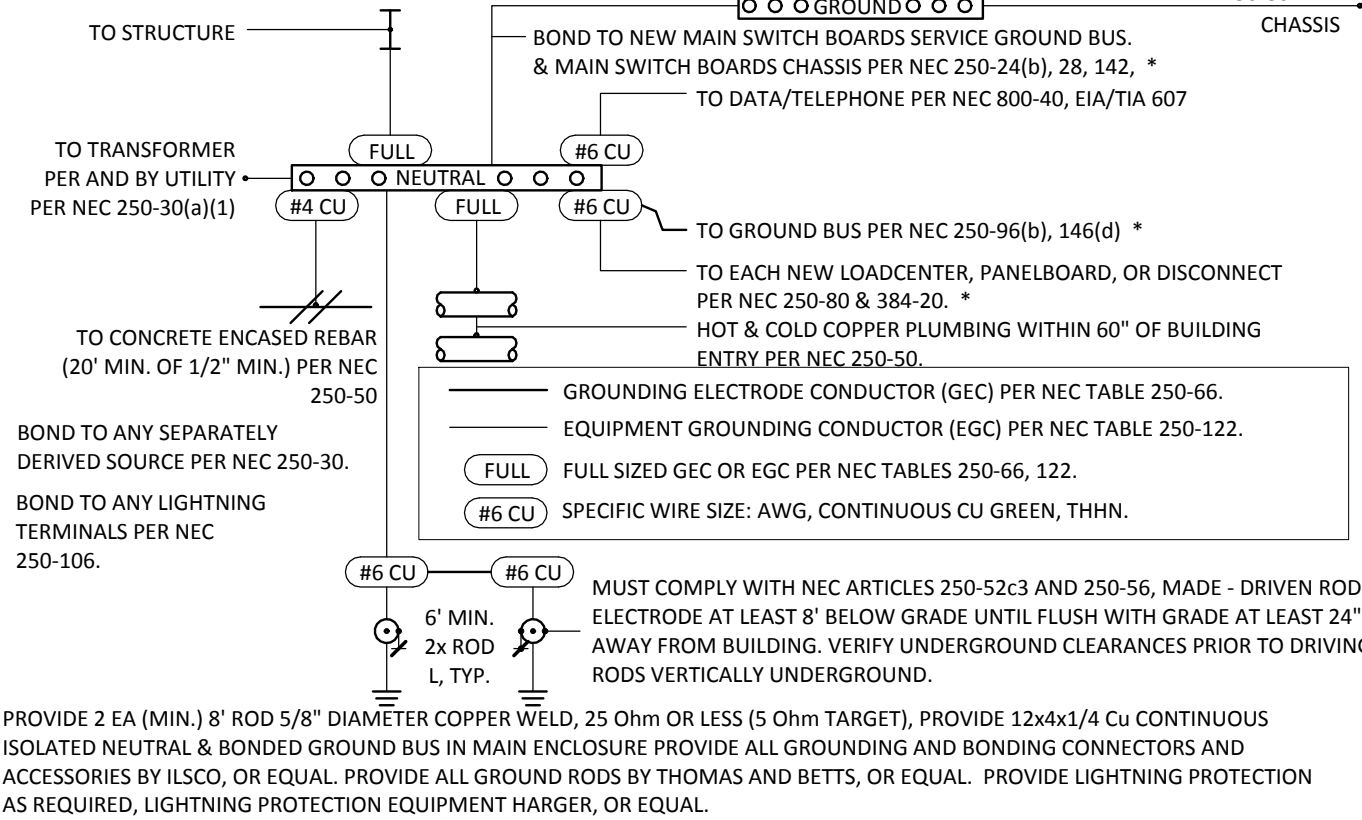
PHONE/DATA

- COMBINATION FLOOR MOUNTED ELECTRICAL/DATA/TELEPHONE OUTLET
- WALL MOUNTED COMBINATION DATA/ TELEPHONE OUTLET
- WALL MOUNTED COMBINATION DATA/ TELEPHONE OUTLET
- WALL MOUNTED TELEPHONE OUTLET @ 54" AFF WITH WALL HUNG TELEPHONE INSTRUMENT
- WALL MOUNTED DATA OUTLET
- MICROPHONE JACK
- TELEPHONE PORT
- DATA PORT
- DATA/PHONE PORT
- DATA/PHONE PORT FLOOR MOUNTED
- DATA/PHONE JUNCTION BOX
- TELEPHONE TERMINAL BOARD
- TELE-POWER POLE

FIRE ALARM SYSTEM

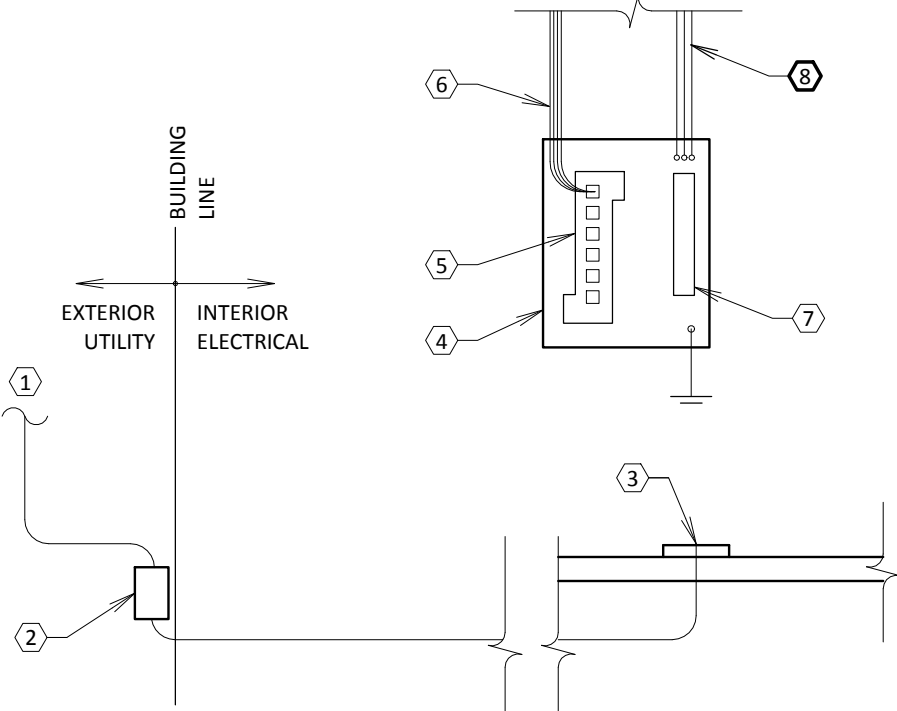
- EXIT SIGN OUTLET
- EMERGENCY BATTERY BACKED DUAL HEAD LIGHT
- EMERGENCY BATTERY BACKED THREE HEAD LIGHT
- ADA HORN/STROBE PROVIDE CODE APPROVED FIRE, SMOKE ALARM SYSTEM COMPLETE
- FIRE ALARM STROBE
- DUCT SMOKE DET. AS NECESSARY
- SMOKE DETECTOR
- SMOKE DETECTOR PHOTO
- SMOKE DETECTOR ION
- MAGNETIC DOOR HOLD
- FIRE ALARM PULL STATION
- END OF LINE DEVICE
- DUCT SMOKE DETECTOR
- HEAT DETECTOR 135 RR IN MECH. ROOM
- SMOKE DETECTOR PHOTO/ION COMBO
- EXIT SIGN WITH DUAL HEAD
- EMERGENCY LIGHT

ELECTRICAL GROUNDING SYSTEM



- GROUNDING PERFORMANCE CRITERIA:
1. INSTALL ROD ELECTRODES WHERE SHOWN AND ANY ADDITIONAL REQUIRED TO ACHIEVE SPECIFIED RESISTANCE TO GROUND. PROVIDE SEPARATE EQUIPMENT GROUNDING CONDUCTOR (INSULATED) WITHIN EACH FEEDER AND BRANCH CIRCUIT.
 2. SUPPLEMENT THE GROUNDING NEUTRAL OF THE SECONDARY DISTRIBUTION SYSTEM WITH AN EFFECTIVE EQUIPMENT GROUNDING SYSTEM TO ADEQUATELY AND PROPERLY SAFEGUARD ALL ELECTRICAL EQUIPMENT AND PERSONNEL. INSTALL EACH EQUIPMENT GROUNDING SUCH THAT ALL METALLIC STRUCTURES, ENCLOSURES, RACEWAYS, JUNCTION BOXES, OUTLET BOXES, CABINS, PULL BOXES, AND CONDUCTIVE FRAMES, ENCLOSURES, OR OTHER CONDUCTIVE PARTS IN CLOSE PROXIMITY WITH ELECTRICAL POWERED CIRCUITS OPERATE CONTINUOUSLY AT GROUND (ZERO) POTENTIAL (VOLTS) AND PROVIDE A CONTINUOUS LOW IMPEDANCE PATH FOR POSSIBLE GROUND FAULT CURRENTS AND SURGE VOLTAGES.
 3. PROVIDE ALL GROUNDING AND BONDING OF ELECTRICAL SERVICE, CIRCUITS, EQUIPMENT, COMMUNICATIONS SYSTEMS, AND SIGNAL SYSTEMS AS REQUIRED BY THE NEC, LOCAL CODES AND ORDINANCES, AND THE POWER & PHONE COMPANIES, AND THESE CONTRACT DOCUMENTS. INSTALL, BOND, AND TEST GROUND ELECTRODE SYSTEM TOGETHER PER NEC ARTICLES 110, 200, 250 AND 280, NFPA 780-1997. * = 200% SIZED WHERE >50% NONLINEAR LOADS PRESENT.

PHONE/DATA/CATV RISER DIAGRAM



- 1 OVERHEAD TELEPHONE BY UTILITY
- 2 EXTERIOR NID TERMINATION BOX BY UTILITY.
- 3 PHONE DROP IN 1-1/2" CONDUIT TO PUNCHDOWN IN MECHANICAL ROOM
- 4 24"x24" PLYWOOD PUNCHDOWN FOR PHONE/DATA WITH GROUNDING BLOCK, #6 AWG
- 5 12 PORT 110 STYLE WALL MOUNT PATCH PANEL OWNER
- 6 DATA CABLES BY OWNER
- 7 110 STYLE PHONE BLOCK BY EC, PHONE/FIBER CONNECTION BY UTILITY.
- 8 INCOMING PHONE CABLES/OUTGOING PHONE CABLES BY E.C.

PANEL A

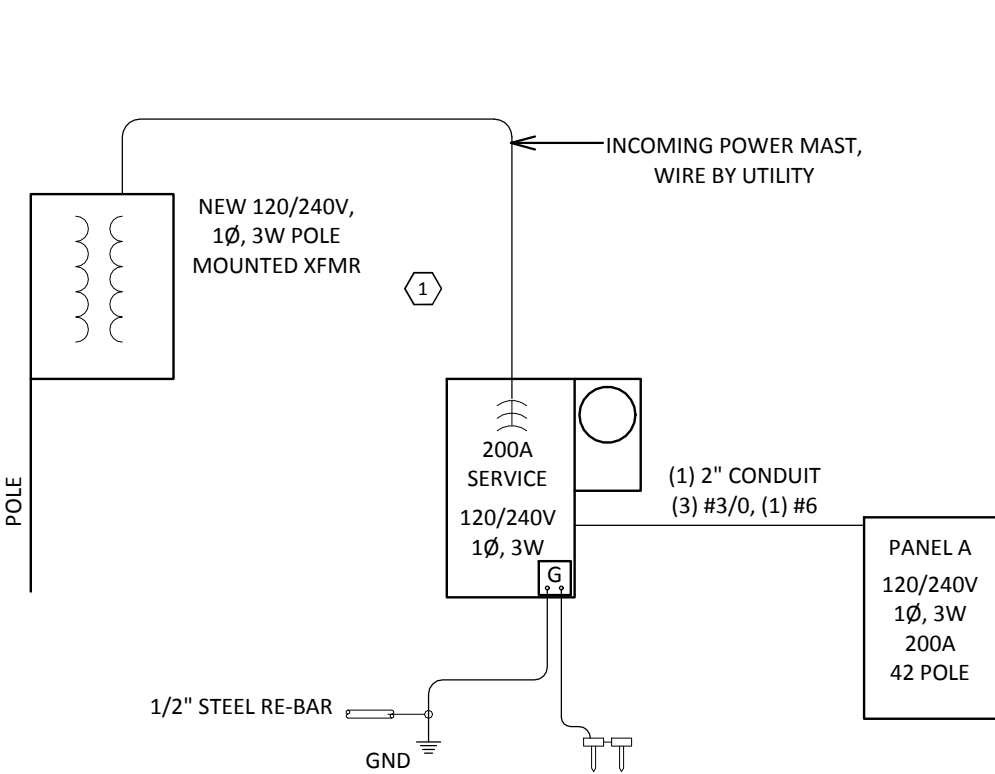
PANEL: A 120/240, 1PH 200AMP									25,300 VA; 105 A	
NO.	DESCRIPTION	OC	(VA)	(A)	PH	(A)	(VA)	OC	DESCRIPTION	NO.
1	LIGHTS - OFFICE 102 / 103	20A-1P	140	1.16	A	8.0	950	25A-2P	HP-1, CC-1, CC-2, CC-3	2
3	LIGHTS - COMMON / MECH	20A-1P	188	1.56	B	8.0	950	"	"	4
5	LIGHTS - EXTERIOR WALL	20A-1P	96	.8	A	6.25	1500	15A-2P	BASEBOARDS - OFFICES	6
7	LIGHTS - BOLLARD / POLE	20A-1P	381	3.2	B	↓	↓	↓	↓	8
9	OUTLETS - OFFICE 102	20A-1P	720	6	A	13.5	2500	20A-2P	BASEBOARDS - COMMON / MECH	10
11	OUTLETS - OFFICE 103	20A-1P	720	6	B	↓	↓	↓	↓	12
13	OUTLETS - COMMON	20A-1P	1260	10.5	A	12.5	1500	20A-1P	EF-1	14
15	OUTLETS - MECH	20A-1P	360	3	B	12.5	1500	20A-1P	EF-2	16
17	OUTLETS - EXTERIOR	20A-1P	360	3	A	20	24	15A-1P	EF-3; EF-4	18
19	SPACE				B	15	1750	20A-2P	DUPLEX PUMP 1	20
21	WATER HEATER	20A-2P	3000	12.5	A	↓	↓	↓	↓	22
23	↓	↓	↓	↓	B	15	3600	20A-2P	DUPLEX PUMP 2	24
25					A	↓	↓	↓	↓	26
27					B	10	1200	15A-1P	DUPLEX PUMP CONTROL PANEL	28
29										30
31										32
33										34
35										36
37										38
39										40
41										42

ELECTRIC BASEBOARD SCHEDULE					
TAG	DESCRIPTION	MANUFACTURER	MODEL	WATTAGE	ELECTRICAL DATA
BB-1	ELECTRIC BASEBOARD HEATER	CADET	3F750*	750	240/1/60
BB-2	ELECTRIC BASEBOARD HEATER	CADET	6F1500*	1500	240/1/60
BB-3	ELECTRIC BASEBOARD HEATER	CADET	4F1000*	1000	240/1/60

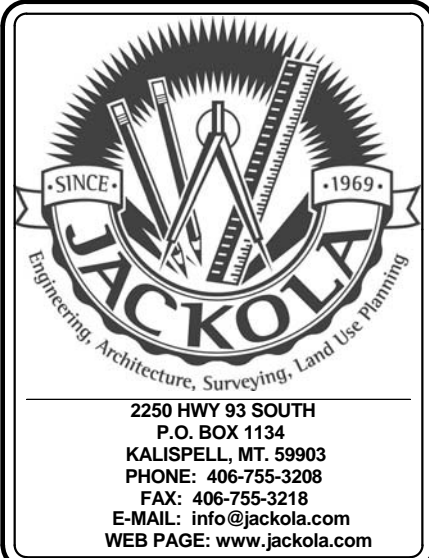
- NOTES:
1. INCLUDE THERMOSTAT ON BASEBOARD

LIGHTING FIXTURE SCHEDULE								
TAG	DESCRIPTION	LAMPS PER FIXTURE	WATTS PER LAMP	LUMEN PACKAGE	VOLTAGE	MANUFACTURER	MODEL OR P/N	NOTES
B-1	LED BOLLARD	1	31 W	12C 700 40K	120 V	ACUTY BRANDS LIGHTING	DSXB LED 12C 100 40K ASY MVOLT DDBXD	SEE C1.11 FOR LOCATION
EK-1	EXIT SIGN WITH EMERGENCY EGRESS LIGHTS	1	4 W	RED LED	120 V	ACUTY BRANDS LIGHTING	LHQM LED R	
L-1	4" SURFACE MOUNT VOLUMETRIC LED	1	35 W	40L LP840	120 V	ACUTY BRANDS LIGHTING	STLA 40L LP840	
L-2	LOW-PROFILE LED STRIPLIGHT 48"	1	42 W	5000LM	120 V	ACUTY BRANDS LIGHTING	ZLIN L48 5000LM FST MVOLT 40K 80CRI WH	
L-3	GENERAL PURPOSE STRIP AFT LONG WITH TWO LAMPS	2	32 W	32	120 V	ACUTY BRANDS LIGHTING	C2 32 MVOLT GEB10IS	
P-1	POLE MOUNTED LED AREA LIGHT	1	131 W	60C 700 40K	120 V	ACUTY BRANDS LIGHTING	DSX1 LED 60C 700 40K T4M MVOLT MA DDBXD	SEE C1.11 FOR LOCATION
WP-1	WST LED WITH 1 MODULE 10 LEDs 700ma DRIVER 4000K COLOR TEMPERATURE TYPE 4 LENS	1	24 W	10A700/40K SR4	120 V	ACUTY BRANDS LIGHTING	WST LED 1 10A700/40K SR4 MVOLT DDBXD	
WP-2	WST LED WITH 1 MODULE 10 LEDs 700ma DRIVER 4000K COLOR TEMPERATURE TYPE 4 LENS OPERATING IN EMERGENCY MODE	1	24 W	10A700/40K SR4	120 V	ACUTY BRANDS LIGHTING	WST LED 1 10A700/40K SR4 MVOLT ELCW DDBXD	INCLUDE EMERGENCY BATTERY BACKUP
WP-3	WSTM LED WITH 1 MODULE 4000K COLOR TEMPERATURE	1	9 W	1A 40K	120 V	ACUTY BRANDS LIGHTING	WSTM LED 1A 40K 120 DDBXD	
WP-4	OUTDOOR LED AREA LIGHT WITH ALUMINUM HOUSING AND POLYCARBONATE LENS	1	21 W	1 40K	120 V	ACUTY BRANDS LIGHTING	TDD LED 1 40K 120 PE	

ELECTRICAL RISER DIAGRAM



- 1 COORDINATE NEW SERVICE ENTRANCE AND METERING REQUIREMENTS WITH THE LOCAL UTILITY COMPANY. METERING EQUIPMENT SHALL BE SUBMITTED TO LOCAL UTILITY COMPANY FOR SIGNATURE APPROVAL AND THEN TO ELECTRICAL ENGINEER OF RECORD FOR APPROVAL.
- 2 ALL CIRCUIT WIRE SHALL BE COPPER WIRE RHW OR THWN IN DRY OR WET LOCATIONS AND THWN ONLY IN DRY LOCATIONS



MONTANA FISH, WILDLIFE AND PARKS
ADMIN BLDG, MAINT. BLDG, HOST PAD
HARRY HORN RD
BIGFORK, MT

SHEET

GENERAL
ELECTRICAL
NOTES AND
SYMBOLS

DRAWN: TLH

CHECKED: TAJ

DATE: 3/18/2015

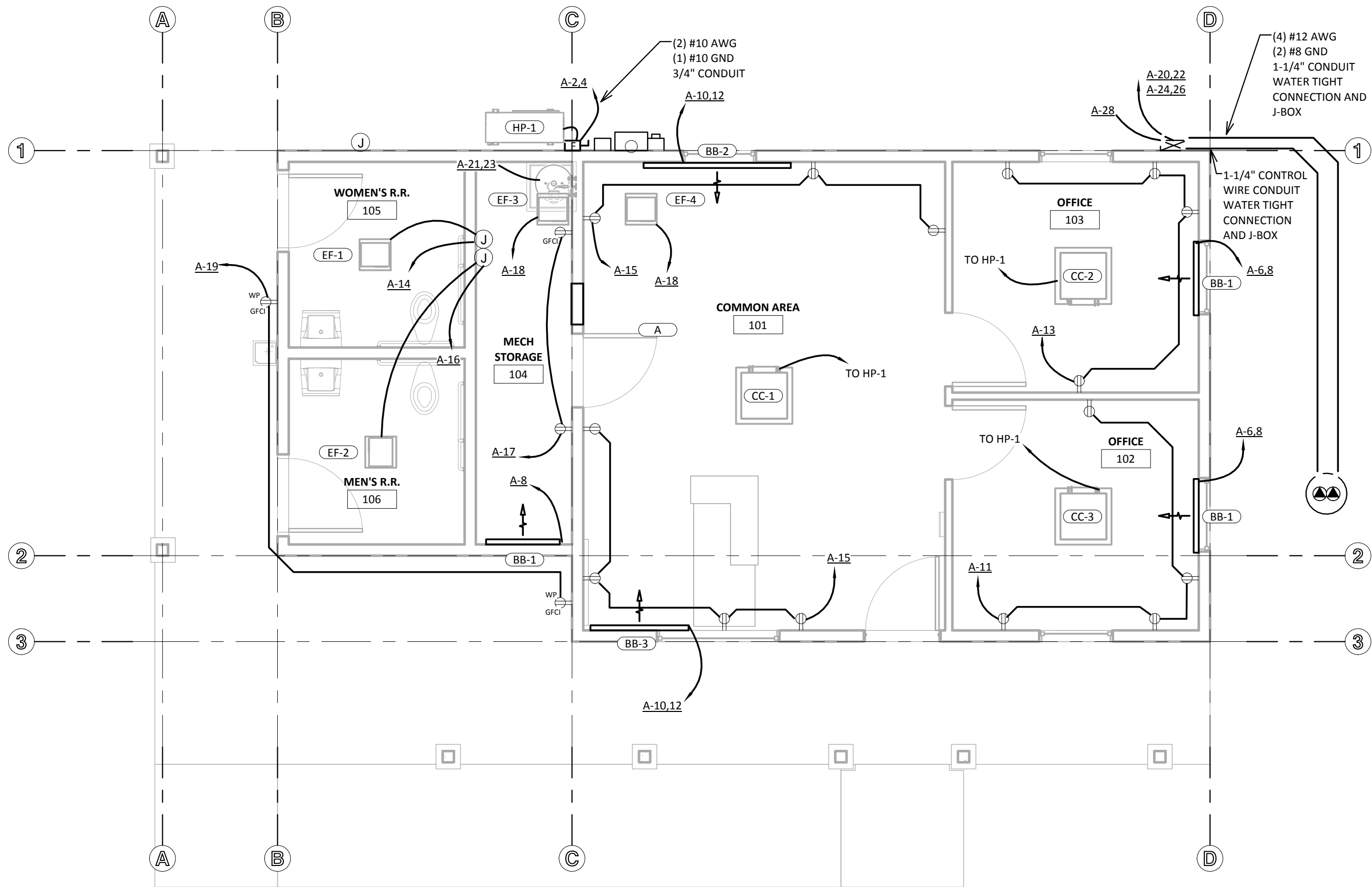
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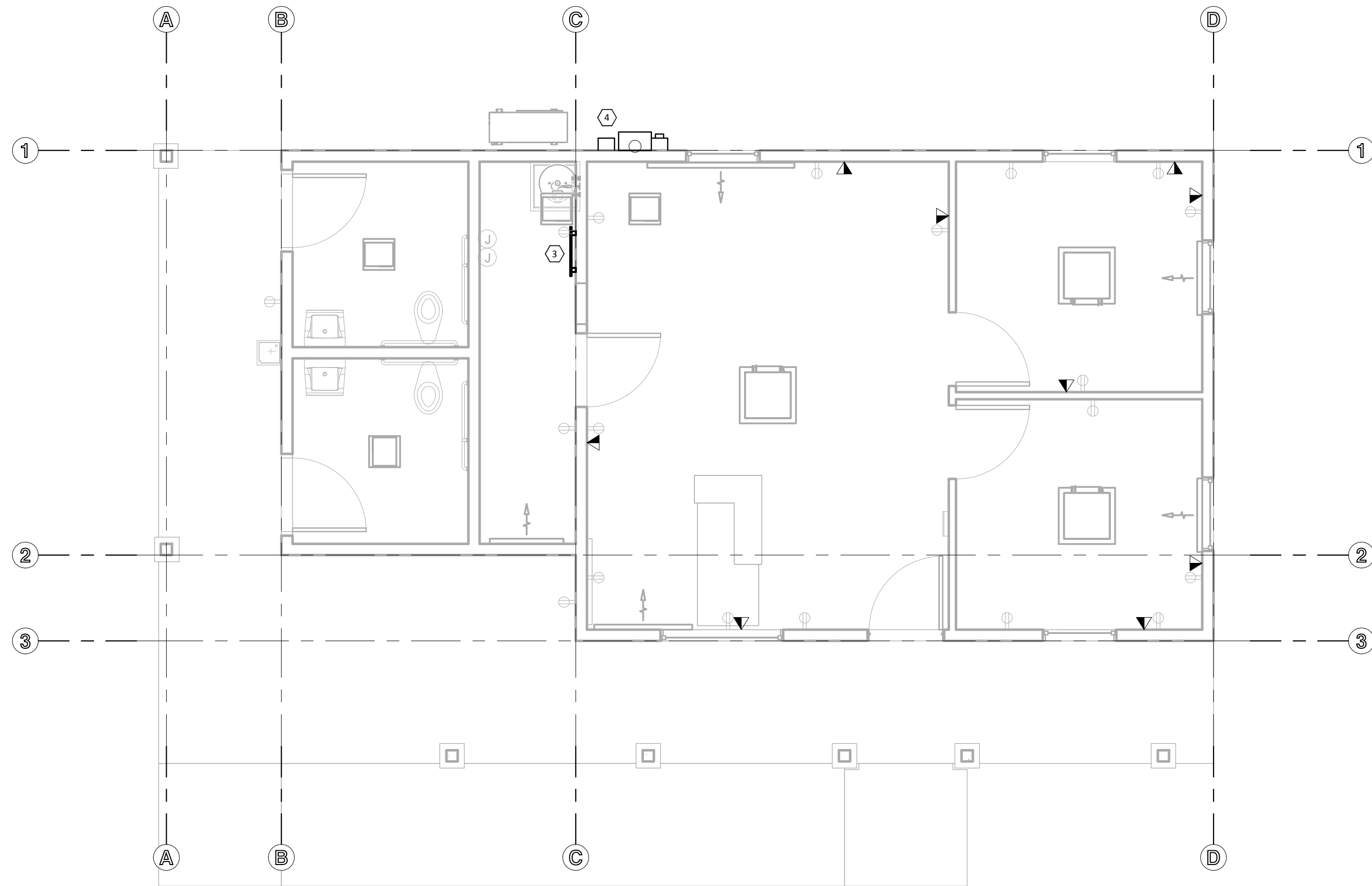
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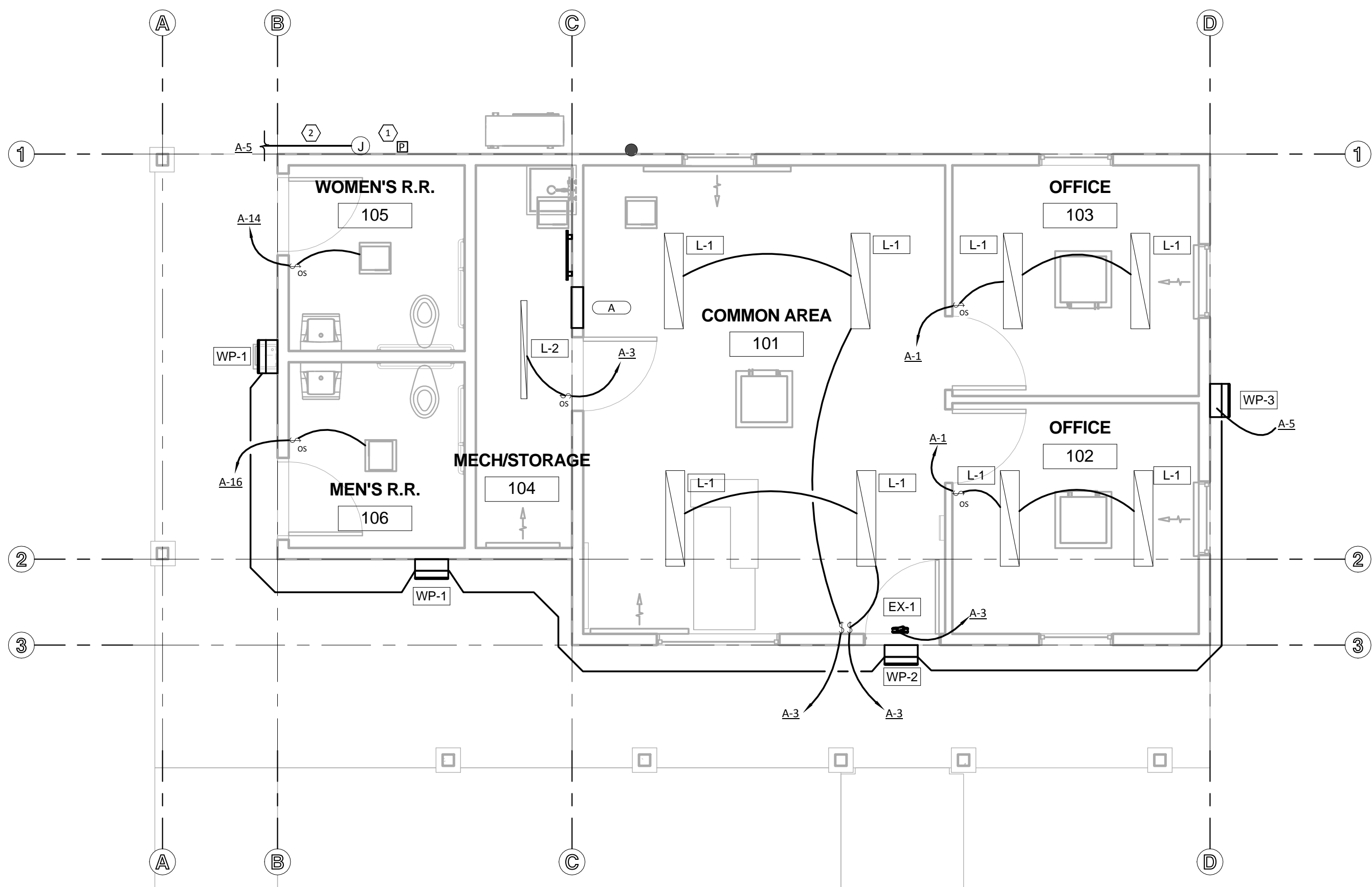


1 ADMIN BLDG. POWER PLAN
1/4" = 1'-0"

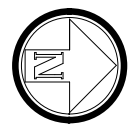


3 ADMIN BLDG. PHONE AND DATA PLAN
1/4" = 1'-0"

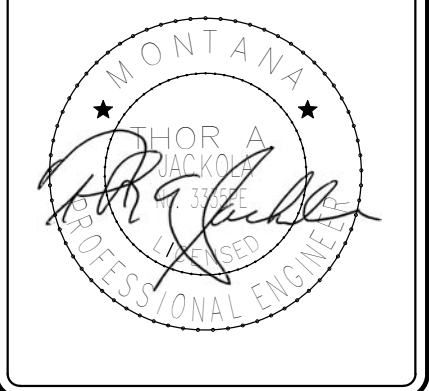
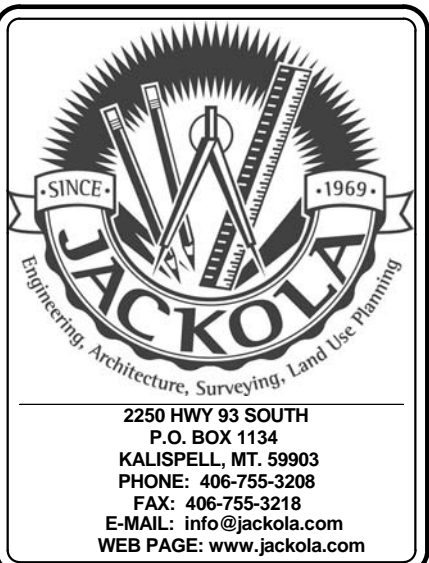
SEE PHONE/DATA RISER
DIAGRAM ON E0.00



2 ADMIN BLDG. LIGHTING PLAN
1/4" = 1'-0"



ELECTRICAL KEYNOTES	
1	PHOTO CELL SHALL BE LOCATED UNDER NORTH FACING EVE. SHALL ENGAGE ALL EXTERIOR LIGHTING, INCLUDING BUILDING MOUNTED WALL PACKS AND SITE MOUNTED BOLLARDS AND POLE MOUNTED AREA LIGHTS?
2	SEE C1.11 FOR SITE LIGHTING CIRCUIT. ALL EXTERIOR LIGHTING TO BE CONTROLLED WITH BUILDING MOUNTED PHOTOCELL.
3	24"x24" PLYWOOD PUNCHDOWN FOR PHONE/DATA WITH GROUNDING BLOCK, #6 AWG.
4	EXTERIOR NID TERMINATION BOX BY UTILITY



MONTANA FISH, WILDLIFE AND PARKS
ADMIN BLDG, MAINT. BLDG, HOST PAD
HARRY HORN RD
BIGFORK, MT

SHEET

ELECTRICAL
FLOOR PLAN

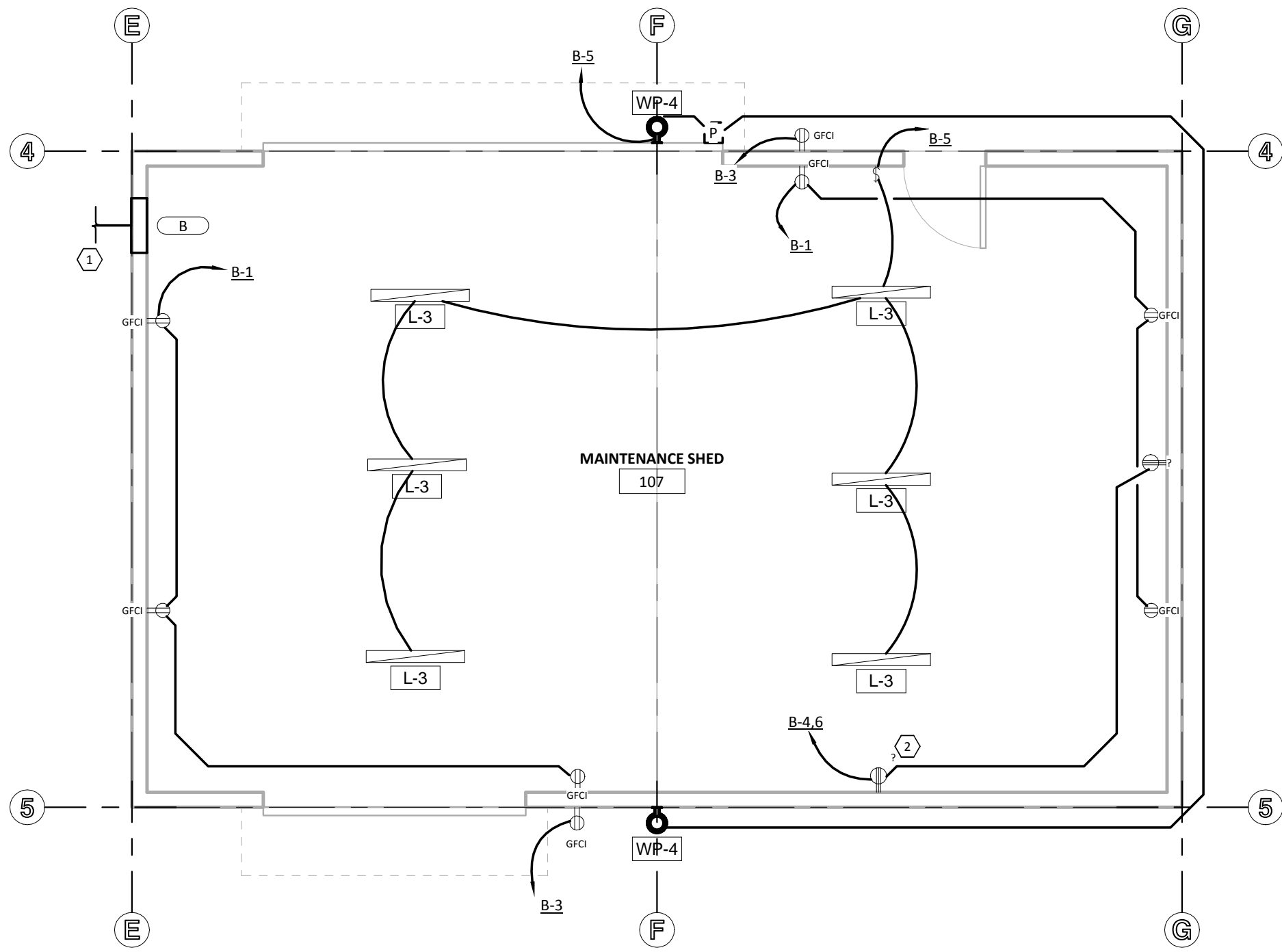
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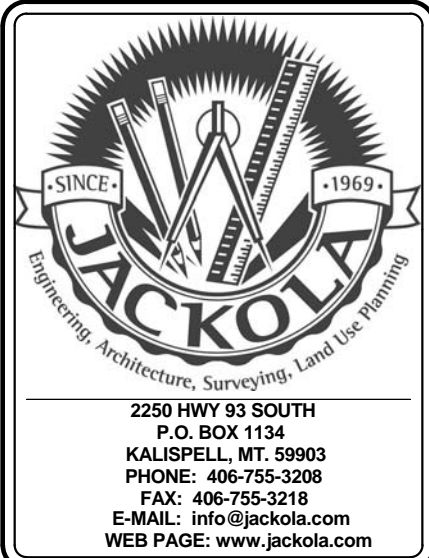
1 MAINT. BLDG ELECTRICAL PLAN

1/4" = 1'-0"

LIGHTING FIXTURE SCHEDULE.							
TAG	DESCRIPTION	LAMPS PER FIXTURE	WATTS PER LAMP	LUMEN PACKAGE	VOLTAGE	MANUFACTURER	MODEL OR P/N
L-3	GENERAL PURPOSE STRIP 4FT LONG WITH TWO LAMPS	2	32 W	32	120 V	ACUITY BRANDS LIGHTING	C 2 32 MVOLT GEB10IS
WP-4	OUTDOOR LED AREA LIGHT WITH ALUMINUM HOUSING AND POLYCARBONATE LENS	1	21 W	1 40K	120 V	ACUITY BRANDS LIGHTING	TDD LED 1 40K 120 PE

PANEL: B 120/240, 1PH EXISTING									
NO.	DESCRIPTION	OCF	(VA)	(A)	PH	(A)	(VA)	OCF	DESCRIPTION
1	OUTLETS - MAINT SHED INDOOR W/S	20A-1P	540	1.16		4.5	540	20A-1P	OUTLETS - MAINT SHED INDOOR E/N
3	OUTLETS - MAINT SHED OUTDOOR	20A-1P	360	3		24	5760	30A-2P	OUTLETS - 240 VAC
5	LIGHTS - MAINT SHED INTERIOR / EXTERIOR	20A-1P	480	4					

ELECTRICAL KEYNOTES MAINT. SHED	
1	EXISTING CONDUIT, CONDUCTORS, AND PANEL SALVAGE FOR RE-USE
2	240 VAC RECEPTACLE AND CIRCUIT. MAXIMUM RATING OF 30A



MONTANA FISH, WILDLIFE AND PARKS
ADMIN BLDG, MAINT. BLDG, HOST PAD

HARRY HORN RD
BIGFORK, MT

SHEET
MAINT. BLDG
ELECTRIC
FLOOR PLAN -
ADD ALT. 2

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